

SCIENCE AND INDUSTRY Sci

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*And if our lines should sag and break
Because of things you fail to make;
That extra tank, that ship, that plane
For which we waited all in vain,
Will you then come to take the blame?
For we, not you, must pay the cost
Of battles you, not we, have lost.*

From An Unknown Soldier on Bataan

SEPTEMBER, 1942

MACKLIN

GRINDING WHEELS



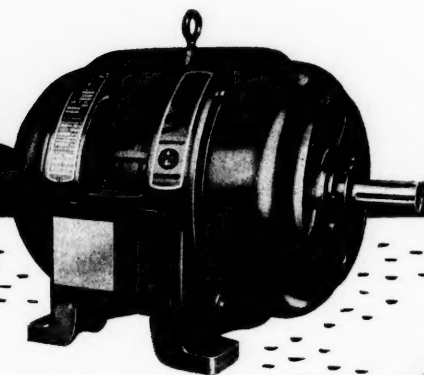
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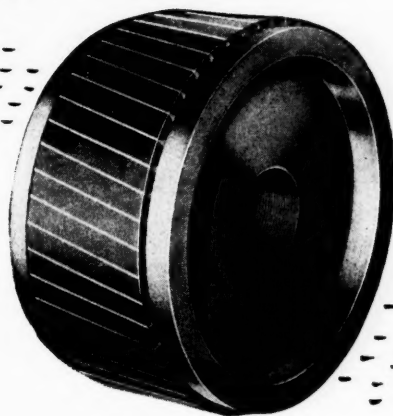
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DIESELS
SCALES
PUMPS**

SEPTEMBER NINETEEN FORTY-TWO

3

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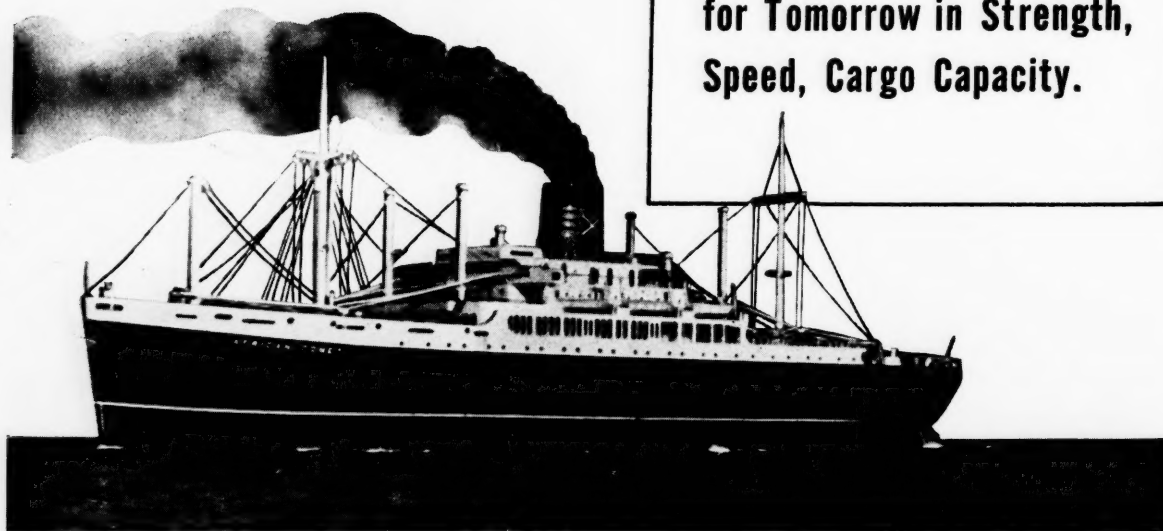


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MANUFACTURERS RECORD

Established 1882

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SEPTEMBER NINETEEN FORTY-TWO

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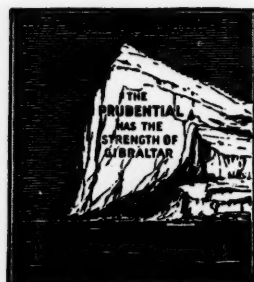
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The Prudential
Insurance Company of America

Home Office, NEWARK, N. J.

Things that interest us

"Things that interest them" should be our head this month but since they interest us too we are leaving the head "as is." These columns are made up with the thoughtful and thought provoking editorials of a few of the many Southern journalists who daily strive to advance the interests of their communities and of the Nation.

Inflation's Faces

Already the United States is in the midst of an inflation which is mounting. We are reluctant to recognize the fact, and we find it easier to ignore because Leon Henderson has given us the hypodermic sedative of price ceilings.

For a time price ceilings can protect us, the consuming public, against the effects of inflation. We have an excuse to argue that there is no inflation. We say that if inflation is a situation in which money loses its power to buy goods, then there can be no inflation so long as Washington sits on the price lid and upholds the buying power of money.

Such a viewpoint is about as short-sighted as for a man sitting on a powder keg to say there is no danger because the burning fuse has not yet reached the explosive.

Price ceilings are, at best, a makeshift expedient to delay the explosion of inflation until something more permanently effective can be done. As such they are justified and worth while, unless—as seems possible—they lull us into false belief that we already have been saved.

Inflation itself is very simple. Its effects, once felt, can not be misunderstood. But the masks which inflation wears, as it creeps up on us, are so various as to confuse the layman.

Inflation can come from the existence of too much actual money. It can come from too few commodities available for purchase.

Usually several of these factors enter into the making of inflation, none seeming important enough to worry us, but all together proving too much for us to withstand.

Today we have at work all of the principal factors which can contribute to inflation.

More men and women are employed than ever in our history, and their wages are at an all-time high, so there is more money circulating.

The government is having to borrow more than any government before ever borrowed, so credit is at an all-time peak.

Virtually all of the factories which used to make expendable commodities, have turned to armament and munitions. So the supply of goods is approaching an all-time low for the modern era.

More money, more credit, less purchasable commodities. Can inflation be far behind? The creaking of the price control machinery says No.—S. B. H.

High Point [N. C.] *Enterprise*

Red Tape or a Halter?

First the country learns that Kaiser is building ships at such a rate that men have begun to call him the miracle man of the Pacific shipyards. Then it hears that Kaiser has perfected a program that will fill the air with battle planes and annihilate the fighting forces of the axis. And finally we hear that Washington has given Kaiser the run around and that he will not be privileged to build any planes at all.

Now the country is informed that our purblind and strabismic bureaucrats are going to prosecute the dealers who have supplied Kaiser with the steel with which he has broken all records in the realm of ship building. The one

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man in all America who has broken all records in the matter of war production is to be deprived of the materials with which to produce. Even the Japanese from beyond the sunset are not attacked any more furiously by Washington than the miracle man of the California shipyards.

It was the government which recently closed the Higgins shipyard in New Orleans. In that case the government pleaded a complete lack of steel. It admits that there is sufficient steel on the coast to keep Kaiser building ships, but it charges that Kaiser has been acquiring steel illegally. There is some law or bureaucratic regulation which prescribes the manner in which steel shall be acquired, and the government charges that steel has been reaching Kaiser in some irregular way. Hence the flow of steel Kaiserward is to be checked or stopped entirely, the shipyard is to be crippled or closed, and the ships that are necessary to save the country are not to be built at all.

Whatever the law that the government is griping about it ought to be repealed or ignored. If it is a mere bureau order, it should be abrogated and the man who issued it ought to be sent to Bedlam. Kaiser ought to be allowed to go on with his building regardless of all man-made laws and bureaucratic regulations and regardless of the strutting of every trumpeteer in Washington. The country ought not to be imperilled by Washington stumblebums.

Apparently the Washington formula is simply this. We are willing for the manufacturers to produce sufficient equipment to crush the axis, providing they buy their material in carload lots. But if they make their purchases in less than carload lots, we will close down their plants and let the axis crush the United States. That is exactly the formula that the government seems to be following in launching its punitive and prohibitive drive against the productive genius of the California shipyards.

Meanwhile, from every political stump in America is heard the passionate appeal, "Elect men to office who will uphold the hands of the administration and support our war program." That is not all that is needed. Nothing is needed more sorely than someone somewhere who will handcuff, silence, and render harmless the wild asses of Washington who consider it more important to buy steel by rule of thumb than it is to crush Japan.

The [Oklahoma City] *Daily Oklahoman*

Sweet Potato Research

Authorization by Congress of the expenditure of \$20,000 for experiments in breeding sweet potatoes in the Southeastern States may sound like the height of folly or something of the sort to the average Southerner who knows that he can plant these potatoes in almost any kind of soil and expect a reasonable crop.

As the Albany (Ga.) *Herald* puts it, for long years sweet potatoes were "just sweet potatoes" in the South, "just as cotton seed was rubbish to be burned or dumped into hollows or streams as a convenient way of getting rid of them."

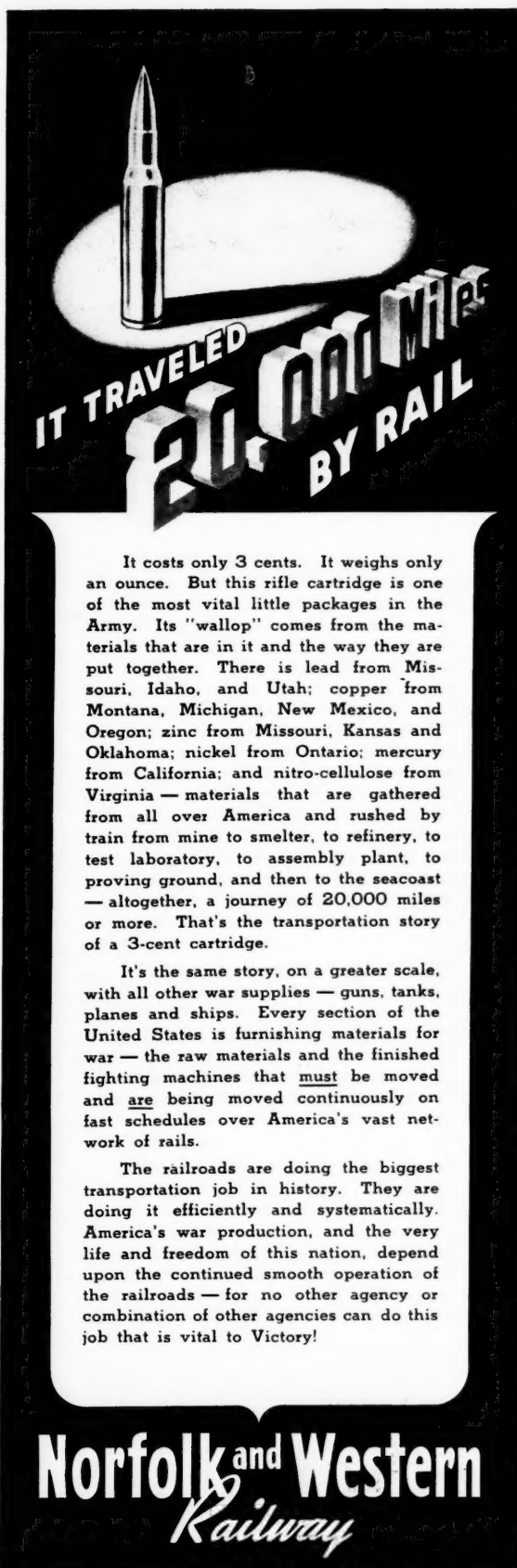
It was through research that "ways were found to make cotton seed add millions of dollars to Southern wealth and return to the soil a large part of the fertility taken from it by the cotton crop."

It was through research that Dr. Charles H. Herty made possible the development of the paper and pulp industry of the South that depends on the pine tree. Research has developed innumerable uses of naval stores, which also come from the pine tree, including synthetic camphor upon which we must now depend since Japan has bottled up the supplies of the natural product which come from the Orient.

Research has also recently given the world a new insect-killing chemical derived from Southern pine, as an effective substitute for pyrethrum and rotenone, supplies of which likewise have been cut off by the war.

(Continued on page 8)

SEPTEMBER NINETEEN FORTY-TWO



IT TRAVELED 20,000 MILES BY RAIL

It costs only 3 cents. It weighs only an ounce. But this rifle cartridge is one of the most vital little packages in the Army. Its "wallop" comes from the materials that are in it and the way they are put together. There is lead from Missouri, Idaho, and Utah; copper from Montana, Michigan, New Mexico, and Oregon; zinc from Missouri, Kansas and Oklahoma; nickel from Ontario; mercury from California; and nitro-cellulose from Virginia — materials that are gathered from all over America and rushed by train from mine to smelter, to refinery, to test laboratory, to assembly plant, to proving ground, and then to the seacoast — altogether, a journey of 20,000 miles or more. That's the transportation story of a 3-cent cartridge.

It's the same story, on a greater scale, with all other war supplies — guns, tanks, planes and ships. Every section of the United States is furnishing materials for war — the raw materials and the finished fighting machines that must be moved and are being moved continuously on fast schedules over America's vast network of rails.

The railroads are doing the biggest transportation job in history. They are doing it efficiently and systematically. America's war production, and the very life and freedom of this nation, depend upon the continued smooth operation of the railroads — for no other agency or combination of other agencies can do this job that is vital to Victory!

Norfolk and Western
Railway



"Saluting"--- THE FLYING FORTRESS —BOEING'S FAMED B-17-E

Out-flying, out-fighting and out-bombing anything it meets in the air—on any front, the Flying Fortress has a reputation of proven superiority. It is a masterpiece of skillful engineering born of wide research and countless experiments. To such war equipment Americans pay thankful and admiring tribute.

But for men who build such planes, those who train to fly them—and for millions of people at home, there must be an abundance of water. To a water system the name Layne is as famed as that of Boeing to long range bombers. Layne has built thousands of water systems—the very biggest in the United States. Layne likewise builds pumps—the kind that out-pump, out-last and out-perform any deep well water producing equipment in any territory—on any task.

Layne's reputation, like that of the Flying Fortress has been proven the hard way—on the field of action. Layne Wells and Pumps by the hundreds are producing millions and millions of gallons of water for manufacturers, cities, railroads and the army and navy. For late catalogs, bulletins and detail information, address

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International Water Supply, Ltd.....	London, Ontario, Can.

WORLD'S LARGEST WATER...

Things that interest us

(Continued from page 7)

So on with the research work on the sweet potato. Dr. George Washington Carver, the famous negro scientist of Tuskegee Institute, already has discovered scores of uses to which the sweet potato may be put, aside from making the best custard pies to be found in the world, and there's no telling what further development may be brought about through the breeding experiments.

Especially is this true in view of the fact that discovery has been made that the sweet potato is the source of the highly important vitamin A. The Albany paper reminds us that recognition of this potato's food value has been given by the Army, which has just ordered one million pounds of dried sweet potato.

Experiments also have established the fact that the starch content of the sweet potato can be increased, and the higher this content the more valuable the potato. Normally it is about 18 per cent, but a high-yield variety in Louisiana has boosted the average to around 28 per cent.

With the sweet potato taking its place alongside the pine tree, peanuts and cotton as products for which there are wide varieties of uses, the South will be correspondingly benefited. And we could stand the inflow of the additional millions of dollars from a crop that is produced with such ease.

The [Jacksonville] Florida Times-Union

Threat to Private Enterprise

B. C. Forbes said recently: "Because of the treatment they have long received, investors have practically ceased to furnish new capital for industry, for railroads, for utilities or other employment-giving companies." Meanwhile, the source of most of the financing is the federal government, which lends and spends with one hand faster than it takes in tax revenue with the other.

If an industrial concern wants to expand or a municipality wants to build a new sewer, emissaries are sent to Washington for a loan. However, the carrying out of these projects is being seriously retarded by material shortages and priorities, even after a loan has been obtained from a federal agency.

Little as the American people may realize it, the centralizing of the bulk of the nation's financial operations in the hands of the federal government is another threat to free enterprise in the United States. Maybe some of the advanced thinkers are deliberately seeking in this way to make it easier and more expeditious for the government to take over all private business.

That this is the purpose of some of these persons need not be doubted for a moment. They are avowed foes of the existing—or what use to be the existing—capitalistic system. They would take away the profit motive which in past years kept American private capital at work, building new industries, putting new inventions on the market and providing employment for hundreds of thousands of skilled workers.

If the advanced thinkers set up a socialistic state in America there will be no longer any inducement for private capital to be put to work and the profit motive which formerly enabled an intelligent, thrifty American to become rich will be outlawed in favor of a system designed to spread national wealth and income among all the people, the drones as well as the workers, the incompetent and unfit as well as those who might, if they had the opportunity and incentive, better their condition.

Although American investors have to a large extent quit providing capital for industry and other forms of free enterprise, why blame them? They feel that government control

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of and interference with free enterprise, which just now is justified on the plea of national necessity, will be carried so far eventually, the private investor will be regarded as a public enemy, instead of a public benefactor and creator of jobs.

While it can be admitted that the driving urge of war has upset a good many democratic traditions in America, it ought not to be forgotten that the tendency toward centralization of all power in the federal government and destruction of free enterprise began long before the second World War did and long before the United States went to war.

Beaumont [Tex.] *Enterprise*

Experience with the Sales Tax

Congress is afraid to pass a sales tax which, at a three per cent rate, would raise two and a half billion dollars for war purposes, because it is looking directly at the coming elections and is uneasy about the public reaction to such a law. It is afraid to call boys of 18 into military service, even if one or two years will be given to training them before they are required to go to any battle front. It is afraid to ration gasoline beyond the boundaries of the eastern states where there is some justification for it. It is afraid to deal realistically with wage scales and farm prices in an effort to prevent inflation.

As to the sales tax, California offers an example of its success and general popularity. There the experiment has been thoroughly tried. The Los Angeles *Times* says: "The people of California realize that the sales tax, which raised \$131,000,000 last year, has lifted the state from what looked like hopeless insolvency to relative affluence, with no more pain to any one than comes from having to carry around a few pennies in the pocket. By and large prices are no higher in California as a result of the sales tax than in states that do not have it."

It is certain that a sales tax will have to be resorted to. The country cannot go on raising war expense money at the ratio of 25 cents by taxation and 75 cents through borrowing, particularly when the overwhelming proportion of the sums borrowed must come from the banks. This policy will make inflation inevitable. Those who are afraid of taxing the groups in the lower income brackets, are preparing to ruin them much more effectively by depreciating the value of the dollar, which means rising prices and a lower and lower standard of living.

It is a shame that cheap politics has to play such a role at this time, making Congress fearful of its own shadow, and keeping the eyes of its members perpetually on the polls. A man doesn't have to be re-elected to Congress, but he ought to feel it to be necessary to be a first class American devoted to the common cause for which the nation is fighting, and afraid of no man in the discharge of his duty.

The Lexington [Ky.] *Leader*

Why Raise the Old Age Tax?

Unless the Congress intervenes employer and employee will each pay more social security tax commencing January 1 for on that day the law says that the payroll deductions for old age insurance, or retirement, will be doubled. Now the rate is one per cent from the firm, one per cent from the worker; the new schedule is two per cent each.

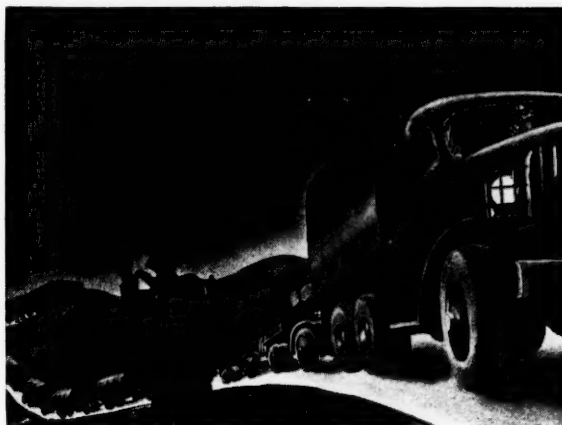
In view of the heavy income taxes which both groups must pay next year and because the fund has accumulated well in excess of expectations, the increases are not advisable. Therefore, since this is no time to place unnecessary burdens on already-badly-stretched pocketbooks, Congress should amend the act so that the present one per cent would remain in force. * * *

The [Columbia, S. C.] *State*

SEPTEMBER NINETEEN FORTY-TWO

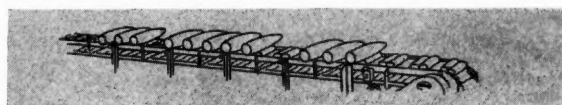
AN ARMY TRAVELS ON ITS

Supply Lines



...SO DOES PRODUCTION

● If a modern army is to attain any measure of success, it must have complete and fast-moving lines of supply backing it to the limit. Likewise, high speed machines, turning out shells and guns, planes and tanks, must have supply lines to keep them producing. In America's great plants today where war materials are made, Mathews Conveyers are keeping parts and assemblies flowing to and from machines with speed and control. It's a Mathews job to keep vital material moving.



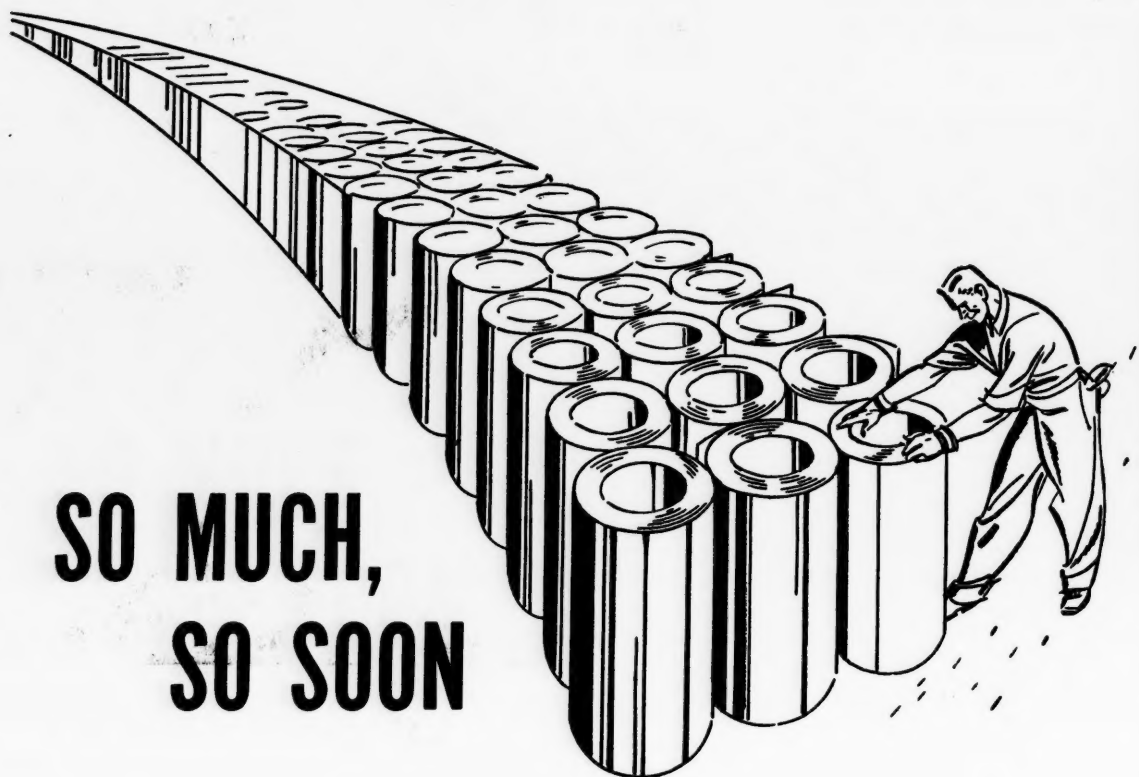
If you are manufacturing war material, or anything vital to the success of the war effort, you can get Mathews Conveyers to handle that material. Rely as usual on your Mathews Engineer.



**MATHEWS
CONVEYER CO.**

ELLWOOD CITY, PA.

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SO MUCH, SO SOON

ALL INDUSTRY has earned its laurels in war production. The people are beginning to understand the magnitude of the job that has been done, so far, with more astounding results to come. So Much, So Soon, has not been easy, for *anybody*.

Here at Alcoa, So Much, So Soon, came out of a very early start on expanded capacity. That expansion was not just a matter of adding, but of multiplying, all along the line. We are making more aluminum in one month than we did in a whole year, not so long ago. The curve is still rising, steeply, to match the curve of plane schedules. Our sector of war responsibility, like yours, is being met.

After the war, industry will have a different kind of war responsibility. All of us will be looked to, to make so many jobs, so soon.

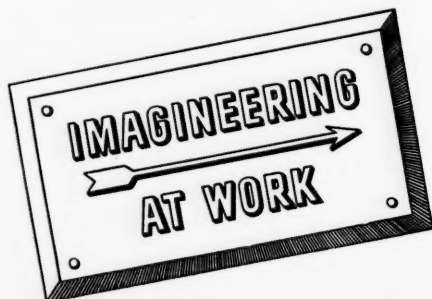
If we can do that, we shall have won the peace as well. Jobs make buying power. They pay taxes. They give men the dignity they want above all else.

Many jobs, the millions of jobs that will be needed, must come out of new things to make. Final blueprints cannot be drawn now, of course. But the Imagineering can be done. Let your imagination soar, then engineer it down to earth with all the technical advances the war has stimulated.

The Bonds you buy today will be the priming of the market. The Imagineering you do will be the stimulus.

Among other things, Alcoa Aluminum, cheaper, better, still more versatile, has new and startling potentialities you should be exploring, against that day.

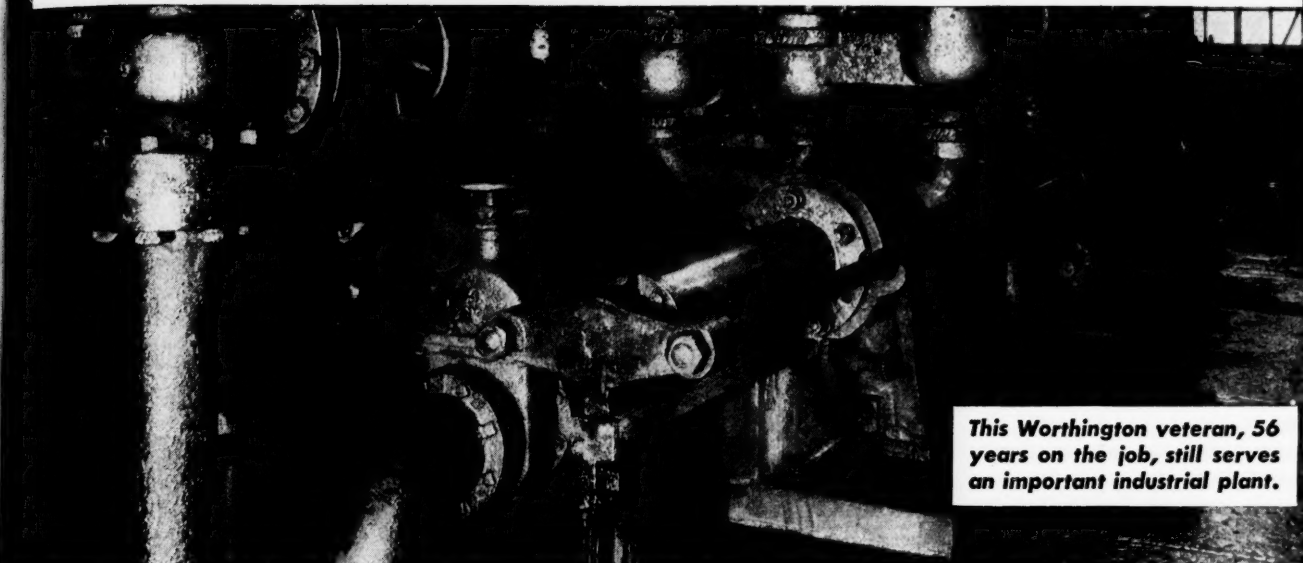
ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA ALUMINUM



Installed in 1886, and still going strong



This Worthington veteran, 56 years on the job, still serves an important industrial plant.

Careful Maintenance Will Keep YOUR Steam Pumps On the Job

YOU long-time users of Worthington steam pumps know how to keep them running and out of your years of experience have come many valuable suggestions. But, under war conditions, many of these pumps may be in the hands of inexperienced operators. These men need some simple practical guidance. Here it is.

Pointers On Steam Pump Maintenance

1. *When starting a pump, make sure that valves in exhaust, suction, and discharge lines, and all steam end drain valves are open before opening the steam valve. If pump is started cold, crack the steam valve open only enough to heat the steam end, before attempting to run the pump. By allowing drain valves to remain open until the pump has made a few strokes, all condensation will be thoroughly drained off. If this is not done, serious damage to the main steam valves can result.*

2. *Lubricate all bearings, joints, moving parts, and piston rods before starting,—subsequently at intervals when in operation. Lubrication should be frequent, but not so abundant as to gum or clog joints. Use only a good quality of mineral oil in the steam cylinder, and a lighter grade of good mineral (or animal) oil on the valve gear.*

3. *Most pump troubles are due to*

fouled liquid cylinders, worn valves, or to conditions in the liquid pipe connections outside of the liquid cylinders. If, therefore, the pump begins to perform poorly it is possible that the trouble is in the liquid end. No adjustments should be made on the steam end until a thorough investigation shows that the liquid end is in good working order.

4. *Liquid piston packing should be inspected frequently to see that it is in good working order.*

5. *Liquid valves should get occasional inspection. If of metal, they should be re-ground when worn.*

6. *Keep the stuffing boxes well filled with a good quality of rod packing. If old packing is allowed to remain in the stuffing boxes long enough to become hard, it will score the piston rod. Do not screw up the stuffing box glands too tight, as too*

much pressure will damage the packing and make it bind on the rod, causing scoring. An occasional drip from the stuffing box should be allowed, as this shows that the packing is not too tight and, in addition, the small leakage will lubricate the packing.

7. *A suction strainer, four to five times the area of the suction pipe, should always be used when the liquid contains foreign matter that might clog valves and pump passages. It should be located where it can be frequently inspected and cleaned.*

8. *If the pump is to be left idle for some time, fill lubricator with oil and open lubricator cock so that oil can flow into the steam chest. Let pump make about six quick strokes to distribute the oil evenly over the inside of the steam end to eliminate danger of rusting. In cold weather, open all drip cocks, and drain all piping when pump is not in use, to prevent freezing.*

If you want these Pointers On Steam Pump Maintenance printed in larger type on a large card, ask our nearest* district office, or address us at headquarters.

*District Offices in All Principal Cities



WORTHINGTON

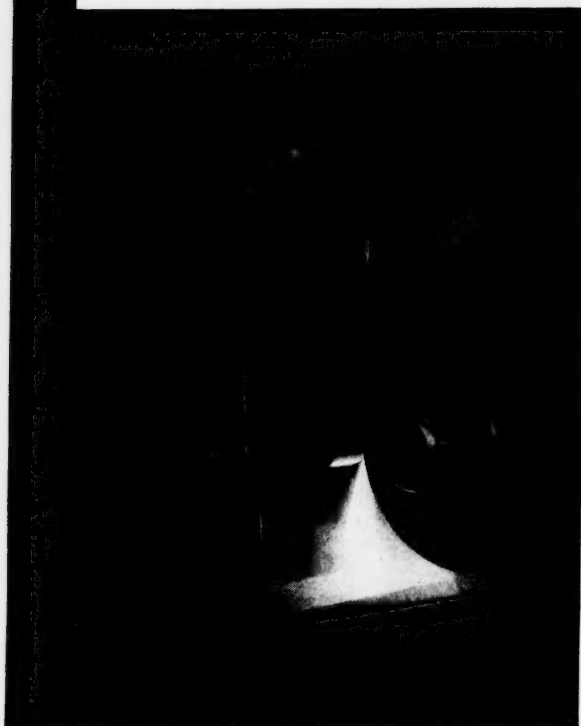


To plant supts.

This is one of a series of ads addressed primarily to new grinder hands. If you would like additional copies without our signature, for your bulletin board, tell us how many you need.

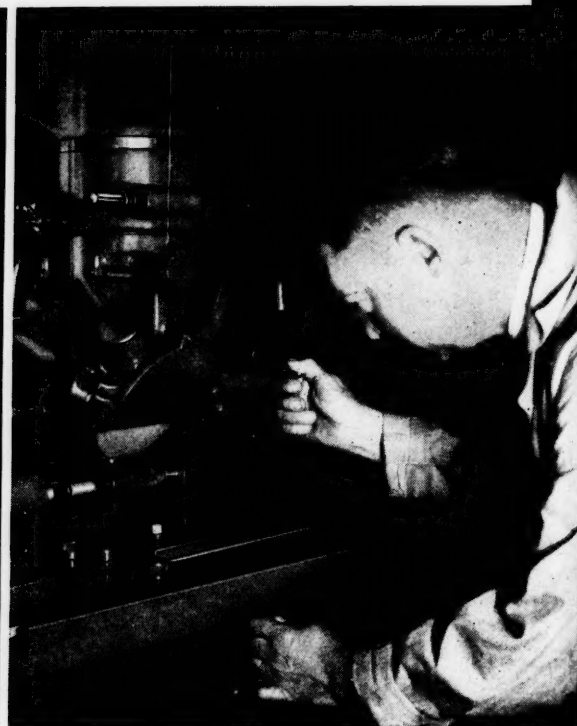
HOW TO GET BETTER AND LONGER SERVICE FROM GRINDING WHEELS

● Speeding production is only part of a grinder hand's wartime job. Basic materials must be conserved at the same time. With grinding playing so important a part in production, these simple rules may help you do both parts of your job better.



1 MAKE SURE THE GRINDING WHEEL IS CORRECTLY MOUNTED

To get the best service from grinding wheels, you must start with the right wheel and the correct set-up. Next it is important to make certain the wheel is properly balanced and correctly mounted. This must be done painstakingly to make sure it is in perfect balance and runs true without vibration or wobble. Where operators have difficulty doing this, they should ask their supervisors for instructions on proper balancing, truing and mounting procedure.



2 MAKE SURE THE GRINDING MACHINE IS IN GOOD CONDITION

The right wheel, the correct set-up and proper mounting are still not enough to insure long wheel life if the grinding machine itself is not in good condition. Bearings should be snug, foundations firm and every care taken to keep the machine as free from vibration as possible. The inspections and servicing necessary to maintain a grinding machine in tiptop condition will be paid for many times in longer wheel life, better work and higher production.

THE CARBORUNDUM COMPANY • NIAGARA FALLS, N. Y.

(Carborundum is a registered trade-mark of and indicates manufacture by The Carborundum Company)



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REctor 2-6560

Let us help you *speed* war production

ALTHOUGH our stocks of steel are not what we wish they were, what we have can be yours in a hurry—subject, of course, to priority restrictions. If we don't have what you need, we will do everything possible to help you find a source of supply. Our first job, like yours, is to do everything we can to speed production that will help win the war.

"Scully Service" is on the job—in all of our eight conveniently located warehouses—day and night. Try Scully—see our phone numbers at left. Cut out the number of the warehouse nearest you and paste it in a handy spot.



IN STOCK! **DARDELET "RIVET-BOLTS"**

We can offer immediate shipment of both Dardelet "RIVET-BOLTS" and Dardelet Machine Bolts. These bolts save valuable time and labor and assure permanently tight joints.

The Dardelet "RIVET-BOLT" is a ribbed bolt with Dardelet self-locking thread, and is widely used for field erection of structural steel. Has recessed nut. Bolt is driven in and nut is applied with wrench. Economical and strong.

The Machine Bolt with Dardelet self-locking thread is for general use where vibration is present.



SCULLY STEEL PRODUCTS COMPANY

Distributors of Steel and Steel Products

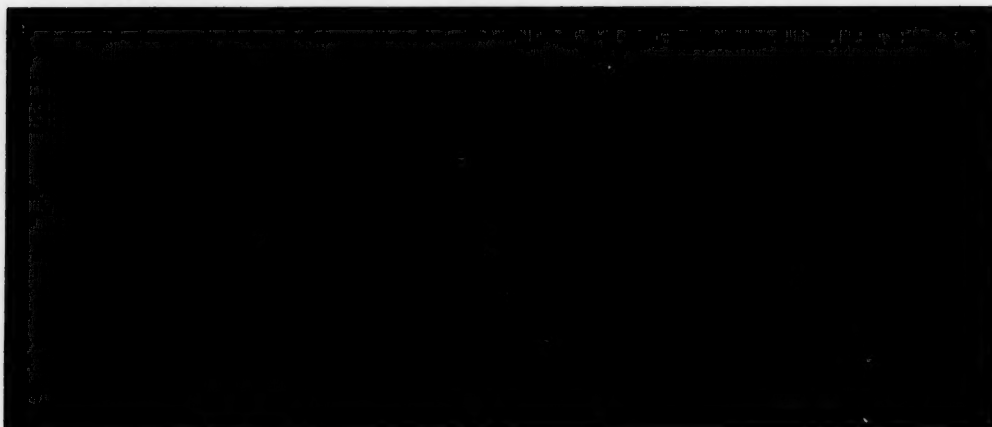
Warehouses at CHICAGO • NEWARK, N. J. • ST. LOUIS • BOSTON
ST. PAUL • MINNEAPOLIS • CLEVELAND • PITTSBURGH • BALTIMORE

UNITED STATES STEEL

SEPTEMBER NINETEEN FORTY-TWO

13

Black-out the Picture



But the Facts Remain

Concerning the construction record of a plant somewhere in the South which ranks high in importance to America's offensive striking power—a plant which has produced the material equivalent of many hundreds of bombers since Pearl Harbor.

In less than six months after the field was cleared this huge plant was erected and in operation, representing an amazing record of coordinated performance. Our part in making this achievement possible was the furnishing and erecting of more than 3000 tons of structural steel a pace ahead of a fast moving schedule.

But it is only one of the many plants now producing, or near production of the essential materials of war because of Virginia Bridge engineering, fabricating and erecting performance. The full weight of our resources, experience and effective cooperation are squarely behind the biggest construction program in history that it may be completed in the shortest possible time.

Virginia Bridge

STEEL STRUCTURES

All Types

Plants:

Roanoke, Va.

Birmingham, Ala.

Memphis, Tenn.



VIRGINIA BRIDGE COMPANY

(South's Largest Structural Steel Fabricator)

Roanoke Birmingham Atlanta Memphis New York Dallas

UNITED STATES STEEL

SAVING 350 TONS for—



WITH **DRAVO** DIRECT FIRED HEATERS

TABULATION of Weights of one recent heating job showed that a Dravo Direct Fired system required 350 tons less of vital metals than would be required for a conventional heating plant!

The men responsible for allocating critical materials for wartime building are recognizing many valuable innovations.

Traditional methods are being examined and frequently rejected in favor of more economical practices that have received recognition in the stress of this emergency.

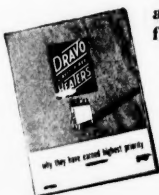
A few years ago a steam plant and distributing system for heat were practically foregone con-

clusions when plans for industrial buildings were formulated.

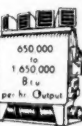
Today heat produced direct by Dravo Heaters has been proved to be more economical of materials—manhours—money—and time! It's easier to get materials when you can prove this!

Acceptance and increased use of the Dravo Direct Fired method of heating industrial buildings over the last 10 years merit the thoughtful consideration of anyone—architect—consultant—heating engineer—plant owner—purchasing agent—anyone who has anything to say about specifying or purchasing heating equipment for needed war production plants.

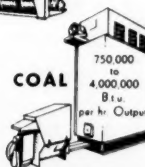
Complete description of construction and function of Dravo Direct Fired Heaters as well as comparison table showing savings they offer in weight, floor space and fuel consumption, will be found in Dravo Bulletin No. 506, available upon request.



DRAVO DIRECT FIRED HEATERS



GAS



COAL

DRAVO CORPORATION

HEATER DEPARTMENT

DRAVO BUILDING

Sales Offices in Principal Cities

PITTSBURGH, PA.

SEPTEMBER NINETEEN FORTY-TWO

15

INDUSTRIAL EXECUTIVES!

THE SCRAP FROM YOUR PLANTS IS NEEDED AT ONCE TO KEEP WAR PRODUCTION MOVING!

YOU know that all our furnaces and mills must be kept working at top speed to win this war. Yet the steel industry, already producing record quantities, cannot attain its full, needed war-time capacity of 90,000,000 tons unless 6,000,000 additional tons of scrap steel is uncovered promptly.

This critical situation can be solved only by the patriotic cooperation of every American manufacturer.

In your plant, lying around in repair shops and storerooms, is the scrap America needs to give our boys the fighting tools they must have to win...

Broken castings, pipe, obsolete machinery, abandoned line shafting, pulleys, pumps, old boilers, storage tanks, beams, rails, fencing, track, chains, cable, rusty bolts, nuts, and rivets...

Round them up and get them moving to the front!

... Like the gas appliance manufacturer who searched his plant and found 90 tons of scrap metals... or the paper mill that "mined" 1,800 tons of steel from its plants... or the rubber company that asked its foremen to "stop holding things" and collected 1,608 tons of iron and steel from old molds and obsolete machinery in a single week!

What others have done, you can duplicate. Walk through your plant with "Scrap" in your mind—you'll be amazed at the harvest. But get it into the fight, *at once*... the war won't wait!

★ ★ ★

HERE'S WHAT TO DO... Appoint one man as Salvage Manager for your organization. Give him authority to *act*—to condemn old equipment, to move material, to collect scrap of all kinds. Have him separate all scrap by type. Then move it promptly through your regular scrap dealers. Don't wait—start rounding up scrap *now*—and keep your scrap moving until the war is won!

THROW YOUR SCRAP INTO THE FIGHT!

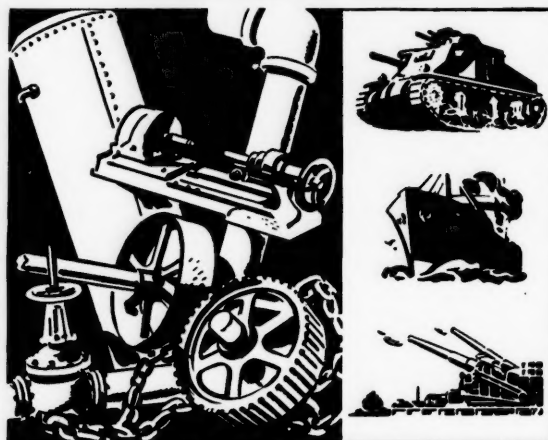


DONALD M. NELSON
says to all industry:

"The shortage of scrap materials for war production is acute. 6,000,000 extra tons of scrap iron and steel alone are needed this year, and vast quantities of rubber, copper, brass, tin, lead and zinc. Without your immediate, active cooperation—whether you have war work or not—we cannot lick this problem. We urge you to organize at once an all-out collection drive in your plants for these materials."

SCRAP NEEDED FOR WAR

SCRAP IRON AND STEEL



50% of every tank, ship, and gun is made of scrap iron and steel!

**Other metals—Rubber—Rags—
Manila rope—Burlap bags**



Thousands of tons of these materials are needed to make bombs, tires for jeeps, surgical supplies for military hospitals, wiping rags for guns, insulation for electric wiring, parachute flares and sandbags.

This message approved by Conservation Division

WAR PRODUCTION BOARD

This advertisement paid for by the American Industries Salvage Committee (representing and with funds provided by groups of leading industrial concerns).

MANUFACTURERS RECORD FOR

THESE "HAND-IN-GLOVE" ADVANTAGES

Give You a Better Roof!



UNDIVIDED RESPONSIBILITY INSURES SATISFACTION WITH CELOTEX VAPOR-SEAL ROOF INSULATION AND CELOTEX BONDED BUILT-UP ROOFS

WHERE the same manufacturer supplies material for both parts of the job—the built-up roof and the roof insulation—the result is naturally better. Each product is developed and applied to obtain the utmost in protection and efficiency from the other.

That's why it's important to use Celotex Bonded Built-Up Roofs and Celotex Vapor-seal Roof Insulation. Both are products of the same responsible manufacturer! Ten, fifteen, or twenty year Celotex

Bonded Built-Up Roofs are available.

And Celotex Vapor-seal Roof Insulation offers (1) a thermal conductivity of only 0.30, (2) an American product which is readily available now, and (3) the experience of a manufacturer who has produced more structural insulation than any other in the business! End the hazards of a "piece-work assembly" job. Protect yourself with Celotex centralized responsibility!



BONDED BUILT-UP ROOFS

VAPOR-SEAL ROOF INSULATION

THE CELOTEX CORPORATION • CHICAGO

SEPTEMBER NINETEEN FORTY-TWO

Wanted urgently: STEEL SCRAP

Shortage of steel scrap is threatening the war-production program.

If ships, planes, tanks and guns are to be produced in the volume needed to win the war, the country's steel-making facilities must operate at full capacity. But the plain truth is that the steel scrap to support continued capacity operations is not available, and not in sight.

United Effort Will Do the Job

Thanks to the construction of new blast furnaces, the deficiency is being partly made up by using more pig iron in steel-making. But tremendous quantities of additional scrap must be found within the crucial next few months.

Actually, many thousands of tons of steel scrap are potentially available *if only they can be gathered in*. This scrap, needed so urgently in the war effort, is scattered through the industrial plants, mines and railways, the farms and the homes of the nation. The problem is to col-

lect it and get it moving to the steel mills. Everyone must help. If everyone will, there will be scrap to meet the needs of the war-production program.

Make a checkup in your plant or warehouse, or any other property you own or manage, and in your home.

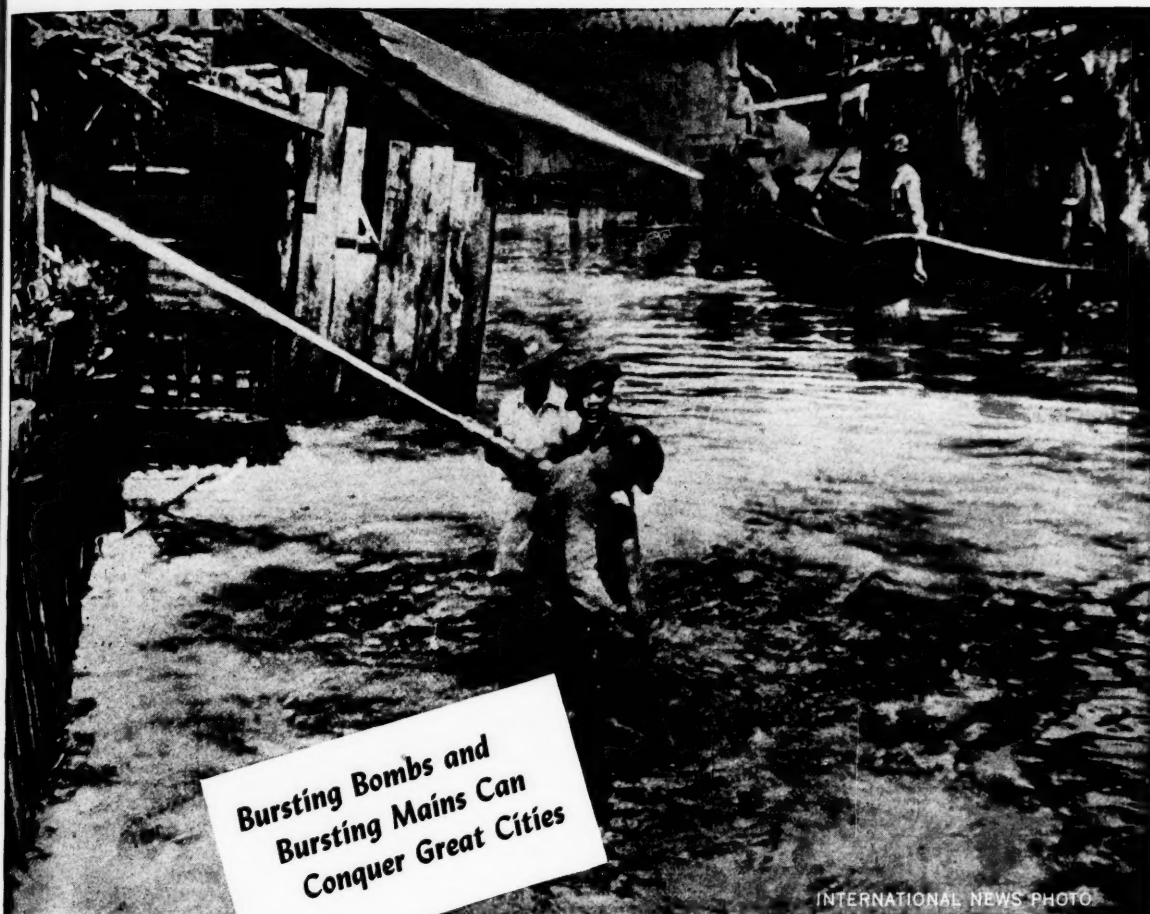
Have any odds and ends of steel or iron that may be lying around collected. If you have any obsolete or idle equipment, machinery, or parts—anything that's made of iron or steel and isn't really needed—junk it, and get the scrap moving toward the steel mills.

How to Put Your Scrap to Work

Some iron or steel now lying rusting and forgotten around your property may help to save the lives of Americans in the battle areas. Gather up every possible bit of iron and steel scrap. Sell it to a local junk dealer, or get in touch with your local scrap salvage committee. Put your scrap to work for your country. It's needed, now!

BETHLEHEM STEEL COMPANY





**Bursting Bombs and
Bursting Mains Can
Conquer Great Cities**

INTERNATIONAL NEWS PHOTO

MAKE AMERICA STRONG...IN THE AIR...AND IN THE GROUND!

Build the sturdiest pressure lines possible with Lock Joint Reinforced Concrete Pipe. Walled by dense concrete, reinforced with tough steel, Lock Joint pipes are a bulwark of defense against the forces of concussion. The unusual elasticity and flexibility of the expansion joints safeguard each length of pipe under the stress of sudden and unequal earth movement. Nor can those enemy agents of time, corrosion and tuberculation, successfully attack or sabotage the steady-smooth flow of these pipes. They will main-

tain their original high-carrying capacity for generations... In keeping with these strenuous times Lock Joint pipes lines are "tailor-made" to your particular requirements, thereby using less of those essential materials so necessary to our war effort. Whether your project is large or small, your 'phone call, telegram, cable or letter to any of our offices will bring a prompt reply.

LOCK JOINT PIPE COMPANY

Established 1905

AMPERE, NEW JERSEY

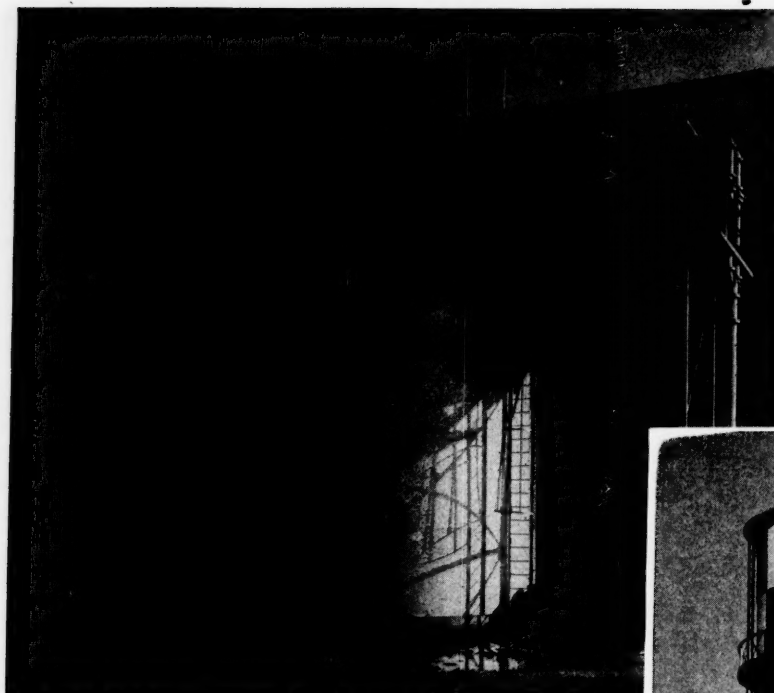
Denver, Colo. • Chicago, Ill. • Kenilworth, N. J. • Kansas City, Mo. • Rock Island, Ill.
White Plains, N.Y. • Valley Park, Mo. • Cleveland, Ohio • Hartford, Conn. • Navarre, Ohio

SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Mains as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

SEPTEMBER NINETEEN FORTY-TWO



ELEVATED STEEL TANKS—Provide gravity water pressure for general service or fire protection. Bulletin entitled *Fire Protection* contains data and tables of standard capacities from 5,000 to 500,000 gals. for ellipsoidal-bottom and hemispherical-bottom types. Bulletin entitled *Radial-cone Bottom Elevated Water Tanks* contains illustrations of tubular and structural column radial-cone tanks. This design used for capacities of 500,000 to 2,000,000 gals. for municipal service with 25 to 35 ft. range in head.

STORAGE TANKS—Flat-bottom tanks with cone or special roofs for the storage of oil, water or other liquids. *Technical Bulletin Number 11* contains tables of barrel capacities for oil tanks, gallon capacities for water tanks and A.P.I. designs.

GUARDING PRODUCTION ... our first line of offense

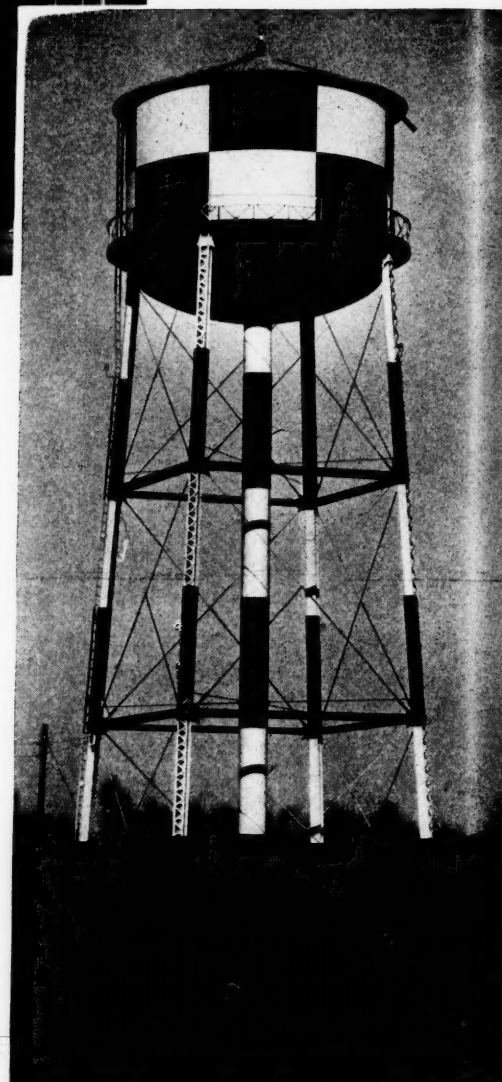
Manufacturing plants, like tires, never seemed so desperately important until it became difficult to obtain new ones. But now-a-days things are different. Every plant we keep from being destroyed by fire is one we don't have to build out of precious materials.

Fortunately for our war effort, American industry has always maintained a high standard in fire protection. Many manufacturing plants are equipped with automatic fire protection systems and elevated tanks to provide gravity water pressure. Some even have steel reservoirs, like the one illustrated above, as a secondary supply.

If you have an elevated tank or a flat-bottom tank for fire protection, take good care of it. Chances are you won't be able to get another for some time. Inspect it regularly and keep it in good condition. Utilize it to protect your most vital production equipment.

When contemplating the installation of tanks or pressure vessels for the production of essential war materials, communicate with our nearest office.

These two tanks are located at a Southern mill producing wood fiber insulation and wall board. The 200,000-gal. tank shown above is piped so that the greater portion of its capacity is reserved for fire service while the 100,000-gal. elevated tank at the right is connected to the sprinkler system.



CHICAGO BRIDGE & IRON COMPANY

Birmingham 1530 North Fiftieth Street
Houston 5614 Clinton Drive
Tulsa 1611 Hunt Bldg.
San Francisco 1040 Rialto Bldg.

New York 3313-165 Broadway Bldg.
Cleveland 2216 Guildhall Bldg.
Chicago 2106 McCormick Bldg.
Greenville York Street

Philadelphia 1619-1700 Walnut Street Bldg.
Detroit 1510 Lafayette Bldg.
Havana 402 Edificio Abreu
Washington 632 Washington Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

11-954

FREE OR MERELY EQUAL?

We think it is about time that some one spoke frankly about labor. The exploitation of men and women who work for wages by parasites who live off their earnings is a stench in the national nostrils. The pandering of politicians to labor dictators is a disgrace that in time of war comes very close to being treason.

In the first place we do not believe that LABOR is a commodity to be bought by capitalists and sold by those who control it. We believe that the Smiths, the Joneses, the Browns and all the others who work are individuals. They should not be leveled off and sold to anyone at any time at so much per hour based on group averages. They are not bushels of wheat, tons of coal or reams of paper. They are American citizens with God-given rights to express and develop their own individual personalities.

In the second place we do not believe that present labor unionism with its closed shop objective is democratic. Any successful institution based on democratic principles protects the rights of minorities. In labor unions, minorities have absolutely no recourse from the orders of the leaders of the majority. Under the closed shop they cannot even resign from union membership and keep their jobs.

Let us examine the organization of labor unions. Who are the bosses? Is the head of a local chapter the president elected by the rank and file of the union? In nine cases out of ten he is a nationally appointed "organizer," sometimes called "secretary." This fellow has a paid job and is a permanent head of union policy and opinion. He secures jobs for the "boys who play ball" with him and disciplines those members whose ideas may differ from his by keeping them idle. What bigger club can the union dictator hold over a member's head than the power to withhold employment—livelihood or starvation?

Most of the thoughtful people who recognize the present cancer of unionism in our economic and political body think that it should be cured by laws that would regulate out of existence some of the outstanding evils that have been permitted to germinate and come to fruition in recent years. Such people advocate laws that would:

1. Require a federal charter for all labor unions.
2. Require the publication of periodic financial statements.
3. Require that elections for union officers be held

by secret ballot under government regulations and supervision.

4. Require the recognition of a union card as entitling its holder to the right to work anywhere in the United States.

5. Require the standardization of initiation fees and monthly dues.

6. Require the removal from office of anyone in any union with a proved criminal record.

We cannot agree that regulatory legislation is the treatment to be used in curing this pestilential disease. It requires an operation.

If we grant the labor union premise that all men are created equal, but not free, then we see men sold as commodities to individual businesses just as one business sells its product to another business—with this glaring difference—organized labor conducts its business as a monopoly. As an individual you cannot sell yourself to it without giving up your economic independence, and there is no other buyer. As a purchaser from it you contract never to purchase its commodity of human souls from any other source under the threat of coercion—or worse. This is an obvious effort on the part of labor union leaders to perpetuate monopoly of the most unpleasant sort.

If we assume that labor is not a commodity, as we do, then it becomes the duty of society, through government, to see to it that no one element in our social and economic structure becomes either so powerful or so ruthless that it is ever able to threaten the individual rights and duties of any single individual anywhere or under any circumstances. Society has done and is doing just this job. There are wage-and-hour laws, old-age pension laws, unemployment-insurance laws, anti-trust laws and a whole field of civil and criminal legislation to protect and compel decency in human relationships.

So we come to our logical conclusions. If labor is a commodity, and if the representatives of our free people so want to consider it, then the running of labor unions is a business and as such is subject to the regulation of our existing laws, including the anti-trust laws. If labor is not a commodity, but a heterogeneous compound of individual personalities, then each one of us is entitled to the protection of his government in working out his own economic salvation and the salvation of his soul without external pressure of any kind.

COTTON WRAPPING FOR COTTON

THE decision of buyers and handlers of cotton to grant producers of the staple a seven-pound gross weight allowance for all cotton marketed from now on in cotton-covered bales represents the culmination of years of efforts by men prominent in the cotton textile industry together with state and federal agencies to make it possible for cotton to be wrapped in cotton.

The new system goes into effect immediately and will serve a double purpose in that it will not only eliminate worries occasioned by the shortage of jute, which must be imported from India over long, perilous water routes, but will also furnish growers with a new and important market for their product—a market that may be needed sorely when the boom-time conditions induced by the war come to an end.

Under the old system, cotton bales were wrapped for the most part in jute, wrapper and ties together weighing about 21 pounds, so that a 500-pound bale of cotton actually contained only 479 pounds of the white fiber. Cotton wrapper and ties weigh about 14 pounds so that the 7-pound allow-

By
Dr. Claudius T. Murchison
President, The Cotton-Textile Institute, Inc.

ance granted growers represents the difference in weight between the new and old type of wrapping. Thus, producers covering bales with cotton will receive full payment for their lint with cotton coverings.

The adoption of this system represents a compromise between mills and growers. For years, many mills held to the opinion that the prices they paid for cotton should be for cotton alone and should not include the heavy wrappings and ties which were of little use to them. In order to achieve this objective, mills gave strong support to a succession of bills, notably those proposed by Congressman Fulmer and Senator Bilbo, which sought to place all trading in cotton on a net weight basis.

The bill submitted by Congress-

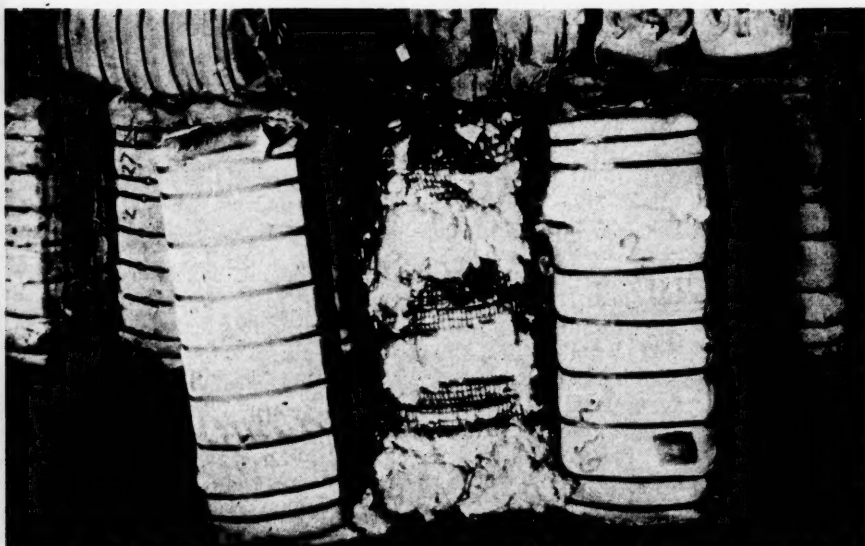
man Fulmer early this year had much to commend it. It was brief and extremely simple and if enacted would have made net weight trading in cotton compulsory. It did not require that cotton covering be used but directed the Secretary of Agriculture to establish standards for materials used for bale coverings.

Under the terms of the bill, maximum weight of any fabric or material used as bagging should not exceed fourteen ounces per square yard. The bill would also empower the Secretary of Agriculture to establish tare allowances. It also contained a provision that permitted the Secretary to disregard the weight limitation if he found the supply of bagging inadequate.

However, net weight legislation met with considerable opposition from certain growers and their representatives and produced some ill feeling between producers and users of the fiber. Opponents of the measure were fearful that under net weight trading farmers would lose that portion of the price which had been previously based apparently on the weight of the covering. While the law no doubt would have had the effect of adjusting the price of cotton to revised methods of trading, ginners and others pointed out that this would be hard to explain to their customers, many of whom do not understand the intricacies of the cotton price structure. Ginners and other primary buyers asserted that months would be required to educate the average grower to the new system and that they could not spare the time.

The new system of granting an allowance on cotton wrapping which offsets the loss in gross weight of the bale is easily understandable and should go a long way toward satisfying the longtime proponents of net weight legislation. The new procedure has the advantage of requiring the use of cotton bagging before the allowance for lighter tare will be made

Jute covered cotton bale in center; cotton covered in cotton on both sides.



and answers the chief objection to net weight which was that a light form of burlap or even paper could be used.

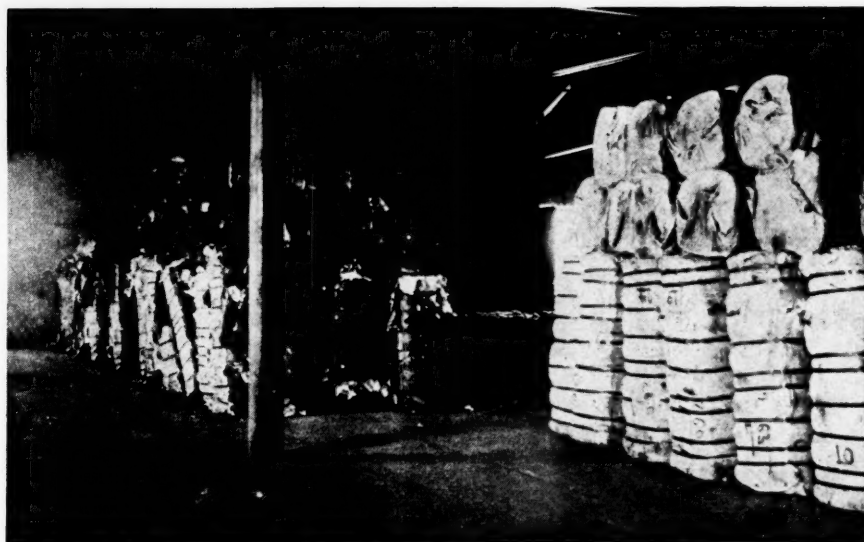
During the current crop year there is bound to be a marked shrinkage in the supply of jute bagging. Sugar bags formerly reworked for use as cotton bale covering will not be available since new burlap cannot be obtained and sugar bags are being mended and reused for shipments of raw sugar. Consequently, it is necessary to supplement the present supply of all types of bagging on hand with approximately four million patterns of cotton bagging in order to have available an adequate supply of fabric to cover the 1942 crop. The Department of Agriculture has subsidized the manufacture of four million patterns of cotton bagging.

The subsidy represents an extension of the Department's long-time campaign to further the use of cotton patterns for wrapping bales. The cotton bale covering is not only neat but it gives good protection and permits the packing of more lint per bale of a given weight. This last factor is of importance at this time for the reason that warehouse space is at a premium.

Several years ago the Department of Agriculture decided to make these patterns available at a reasonable price. In order to do this, payments were made by the Agricultural Marketing Administration to mills supplying the patterns. The patterns were then sold to producers and distributors by mills weaving the materials.

Lane Cotton Mills of New Orleans, La., have been allocated the manufacture of 3,930,000 patterns and Little Rock Textile Company of Little Rock, Ark., the other 70,000. Both firms are paid 35c per pattern by the A. M. A. and sell these patterns to producers at a price fixed at \$1.10 per pattern and to wholesale distributors at \$1 per pattern. This approximates the prevailing price for jute patterns.

There is slightly more than six yards of fabric to a pattern and it is estimated that about 11,000 bales of cotton are required to make one million patterns. It is



Comparison of cotton covered and jute covered cotton bales in a warehouse.

also estimated that it would take 130,000 bales to make enough patterns to cover a 12,000,000 bale cotton crop. Recent estimates put this year's crop at above 13,000,000 bales.

The importance of the adoption of cotton bale coverings, of course, goes far beyond the amount of cloth or cotton involved in opening up this new outlet. For years the cotton textile industry has been laboring to halt the inroads of paper and jute in the bagging field and has spent considerable money in extolling the virtues of cotton wrapping for both agricultural and industrial products. Meanwhile, all efforts to induce wider use of cotton bagging in farm areas invariably met with the argument that the industry would do well to set an example for potential customers by inducing the use of cotton wrapping by the growers of its chief raw material. The argument, of course, was unanswerable and no doubt did much to hold back the expansion of business that should have taken place in the cotton bag fields.

Meanwhile, the country at large, under the stress of war, is awakening to the downright necessity of building up a supply of the many durable cotton fabrics that can be used as wrapping materials for a host of products. This was illustrated only a few months ago when the War Production Board issued

a directive aimed at raising the annual production of cotton bag fabrics to a billion and a half yards or enough to meet the needs for agricultural bagging as well as special wartime requirements for sandbags and camouflage cloth. This directive converted an additional 20,000 looms to the production of wrapping materials.

In normal years about 650,000,000 yards of cotton osnaburgs and sheetings are used for bags and about the same amount of burlap is customarily absorbed by the bag trade. The bag fabrics specified in the W.P.B. order have long been interchangeable with burlap in the packing of feed, potatoes, fertilizer, sugar, rice, chemicals, wheat, corn, linseed, soybean meal, beans, starch, seeds, salt and flour.

The retention of these outlets after the war will be helped by the fact that a sizeable proportion of the cotton crop each year will be wrapped in attractive cotton coverings. It is admitted on all sides that the average cotton bale with its torn, reused jute wrapping as seen on railroad sidings and piers is a poor advertisement for the cotton industry in this day of high-style packaging and streamlined merchandising. The seven-pound allowance should popularize cotton coverings and will probably lead to a veritable revolution in the packing of agricultural crops with the possibility that cotton bags, which can be dyed almost any color, will at long last recapture their oldtime predominance.

RESEARCH — INDUSTRY — and the SOUTH

TWO foundations were laid last year in Alabama which should have great potential importance. In Mobile the Southern Association of Science and Industry was founded at a meeting of the Alabama Academy of Science. Almost simultaneously the Alabama Research Institute was chartered by the state under the sponsorship of the Alabama State Chamber of Commerce.

The Southern Association of Science and Industry resulted from the realization that progress comes only through research and that the results of research go for nothing unless applied to something by somebody. The aim is to foster research in the South and to apply its results to southern problems. The application must be by industrialists who build plants, operate mines, and convert the raw materials into saleable products. The aim of this organization is to bring together scientists and industrialists so that both groups may get a better understanding of the problems of the South, exchange ideas as to what can be done about them, and realize their several obligations to exert themselves to improve conditions for the good of all.

The Alabama Research Institute was founded by a group of forward looking business men as a non-profit organization. Its object is to survey the opportunities and problems of the state, to apply to these the results of recorded research and then to initiate and foster further research. Under war conditions only the first part of the task can be undertaken. The collection of information has been begun with a small staff. This is to be factual and thorough. What are the resources of the state, of farm, of forest and of mine? How are these being utilized? Which offer opportunities that have not been realized? How can these be developed? The information so gained will be the basis of further steps, the setting up of labora-

By

Milton H. Fies

*Vice-President, DeBardeleben Coal Corp., Birmingham, Ala.,
President-elect, Southern Association of Science and Industry*

tories, engaging of research personnel and the actual conduct of research.

The Southern Association of Science and Industry and the Alabama Research Institute are independent yet interdependent. The one is general, studying the problems of the South as a whole, with eyes to see what might be done but with no hands to do a specific task, the other is primarily limited to one state, to select a few of its problems and get down to work on them. It is hoped that eventually all of the southern states will follow the lead of Alabama and that each will have a research institute tackling its own problems. The men from these institutes will come together with other scientists and industrialists in the general meeting of the Southern Association of Science and Industry to give and get information and inspiration.

Both of these organizations are deeply conscious of their obligations to the country in this time of war. They are concentrating on immediate problems which have to do with the war effort but they are looking ahead to peace and the problems it will bring. We were unprepared for the war; will we be unprepared for the peace? We have the alibi that we did not know the war was coming. We know that the peace will come. We should prepare for it. The survey of resources which the Institute is making will produce information, all of which will be either of immediate use or of value for future reference.

Dr. Austin H. Clark, of the Smithsonian Institution, foresees a great future for scientific activity in the South. This section of our country, emphasizes Dr. Clark

in commenting on the Southern Association of Science and Industry, is "free from the rigid crystallization resulting from the consolidation of more or less antiquated traditions and precedents that tend to hamper initiative and progress in marked contrast to most comparable organizations in the Northeast." This indeed is a refreshing viewpoint—the traditional shoe is on another foot. And, continues Dr. Clark, such activity is concerned with an "area in which science is in a state of rejuvenescence, again in contrast to the Northeast where science has become more or less stabilized."

Dr. Clark's deductions are patent for these elementary reasons: The South has one-third of the minerals of the United States, one-fifth of the bituminous coal, two-thirds of the oil, two-thirds of the natural gas, one-half of the marble, ninety-seven per cent of the phosphates, ninety-nine per cent of the sulphur, forty per cent of the forests, over ninety per cent of the cotton, one hundred per cent of the turpentine and rosin, much iron ore and salt which is estimated not in tons but in cubic miles. Yet the average income in the South is low. The Southern Association of Science and Industry proposes to waste no time explaining how things came to be as they are but it is concerned with finding means to improve present conditions. This is its job—to recognize and study facts as they are so that progress will have a true foundation.

The South lags behind in scientific research and in the application of the results of such research to industry and agriculture. The men who have come together in the Southern Association of Science and Industry believe that there is a causal relation between the lack of research and the low standard of living. They believe that the sure way to raise the farm income is by improving the methods of

(Continued on page 50)

SHIPBUILDING

An Achievement of Private Enterprise

THE biggest, most complex single job in solid metal since man began to work with metal thousands of years ago is the building of a large ship. It takes approximately three years to build a battleship. Into the building of a Liberty Ship—an emergency cargo vessel that has been stripped of frills and standardized for rapid production—go some 500,000 man hours and the time needed is five, four or at best three months.

The final assembly station in the building of a ship is the shipway. But to talk of assembling a ship is like talking of assembling a skyscraper. Assembly is the big part of the job.

But not the whole job. For generators and turbines must be built. Giant shafts must be turned. Propellers must be forged and machined. Tons of plate must be cut, scarfed and planed. All of this work is done in machine shops, some in the shipyard itself, some outside. But wherever it is done, it is a job for machine tools.

Making gigantic parts fit to a thousandth part of an inch is just about the hardest job in building a ship. Some of the gears that go into an engine have to be cut in air-conditioned rooms, since the pieces of metal from which they are made are so large that change of a few degrees in temperature will cause them to contract or expand enough to throw measurements off balance.

A rise in temperature may change the size of a small rod so slightly that it would hardly make any difference. But in the tremendous gears of a ship, the same rate of expansion may make a change that would be more than enough to ruin the job. So the temperature in cutting rooms must be stabilized.

Even if there were only a few of these huge parts to fit to near-per-

fection, the demand on time and machines would be considerable. But there are many such parts. Into a ship go turbines as high as a room, gears larger than an entire motor truck, propeller blades taller than a man, valves big enough for a man to crawl through.

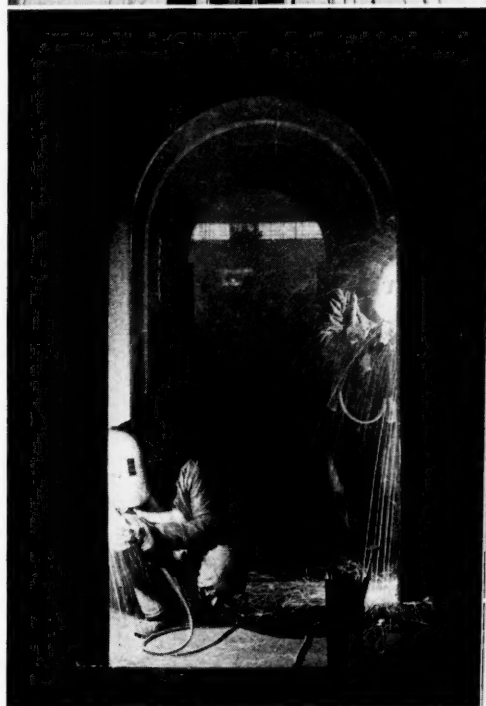
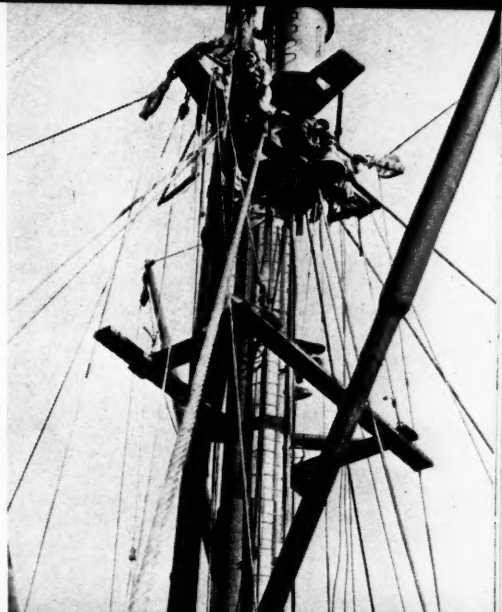
Nearly all of the facilities now making propellant equipment for ships are either new or converted from some landlubber industry. Electrical machinery plants are building turbines, plumbing and heating supply plants are making valves and shafts. From dozens of foundries are coming heavy castings to be turned into rings and sleeves by pump makers, marble cutters and an assortment of other craftsmen not afraid of heavy work and fine tolerances.

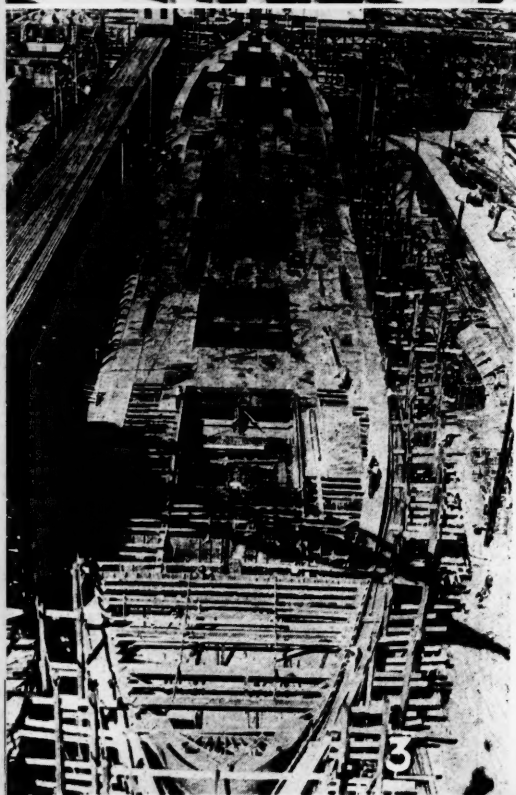
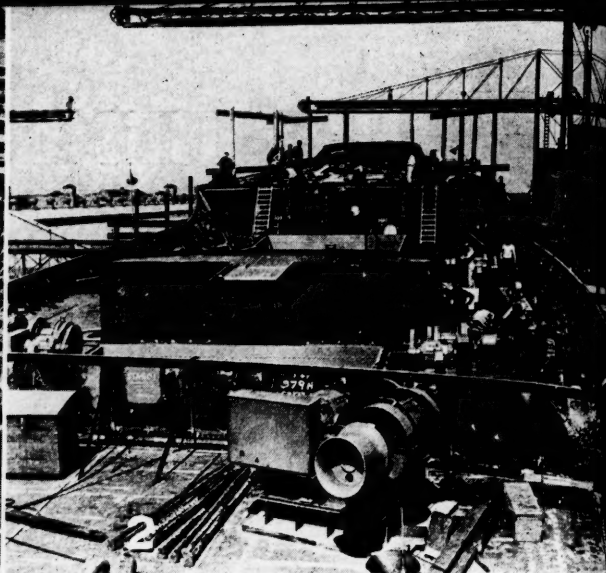
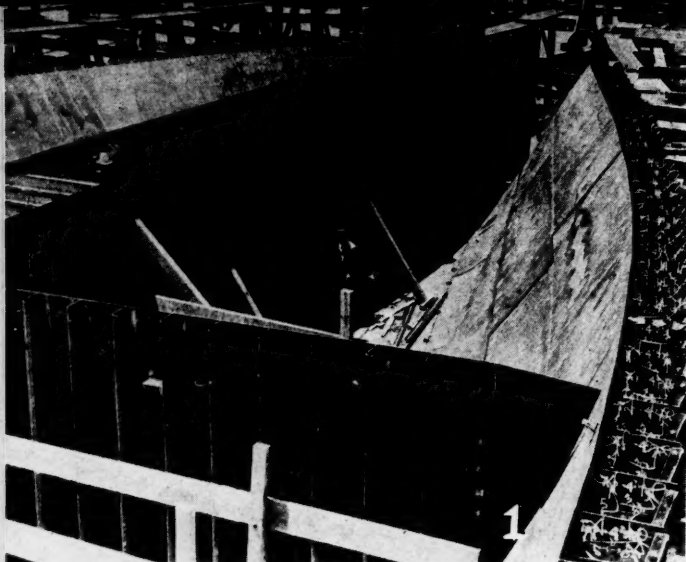
The size of the ship building program alone would mean a tremendous expansion of a going industry. But the United States did not have a fully going shipbuilding industry to begin with. It was only on its way at the time the need for merchant shipping began to be felt in the summer of 1940. Shipbuilding in American yards practically stopped after the World War program was ended early in 1922.

This old program was quite sizable. It hit a peak of 5,051,759 deadweight tons in 1919—after the Armistice had been signed—and accounted for an aggregate of 14,525,939 deadweight tons during

Top—These workers are making the final fitting and checking of the rigging of the masthead on a Liberty ship at a large Eastern shipyard. Center—This welder is joining side plates to angle frames forming sections of the propeller shaft tunnels on a Liberty ship. Bottom—These are prefabricated inner bottom tank sections ready to be set in place and welded into a unit.

(O. E. M. photos.)





1. The stern quarter in the bottom of the hold of a C-3 ship. The watertight bulkhead can be seen in the foreground.

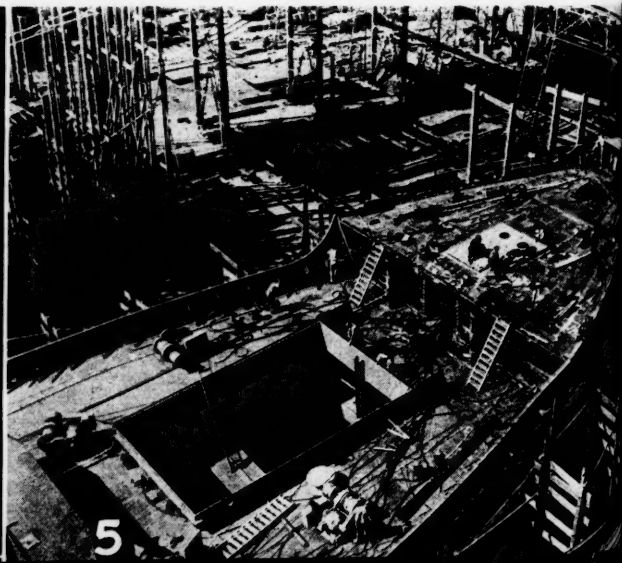
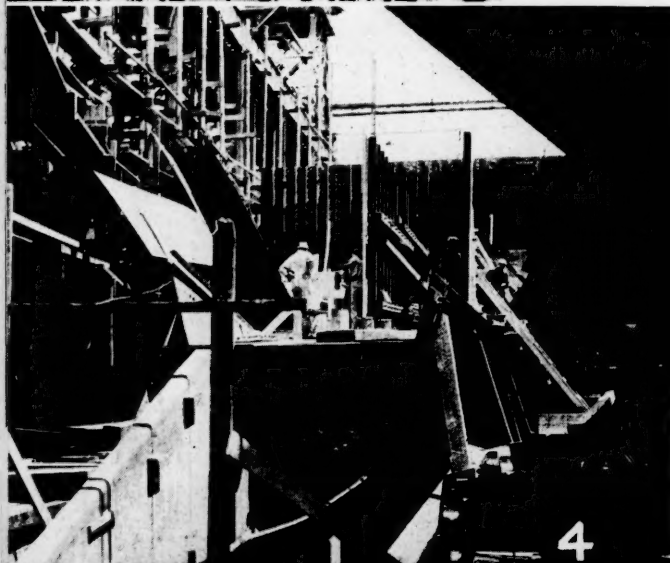
2. The Harvard deck on a C-3 ship as seen from the bridge. The winch in foreground has not yet been placed in position and the foremast still has to be erected.

3. General deck view of a C-3 ship in course of construction on the ship ways. The deck flooring is almost complete; amidships it is already completed while fore and aft it is still being laid.

4. Stern section of a C-3 with not much more than the keel immediately visible, though a bulkhead, showing progress, can be seen in the background.

5. Air-view of the fore deck and bow section of a C-3 with work well advanced. The hatch is one of two on the fore deck and two others are on the after deck.

(O. E. M. Photos)



the five-year period from 1917 to 1922. But during the next five years, our yards delivered only 699,767 deadweight tons—96 ships. In the following five years, 602,823 tons—66 ships. In the next three years, 1394 to 1936, a total of 16 ships was built.

All of this meant that America's shipbuilding industry was at keel bottom. With the impetus given by the Merchant Marine Act of 1936, the industry began to stir, slowly. By 1940 it was able to build 56 ships in twelve months—more than any year since 1922.

Last year 1,100,000 deadweight tons of shipping were delivered and plans were made for approximately 6,000,000 tons for delivery in 1942. This schedule—15% larger than last war's peak—was replaced by one for 8,000,000 tons set by the President as the new 1942 objective.

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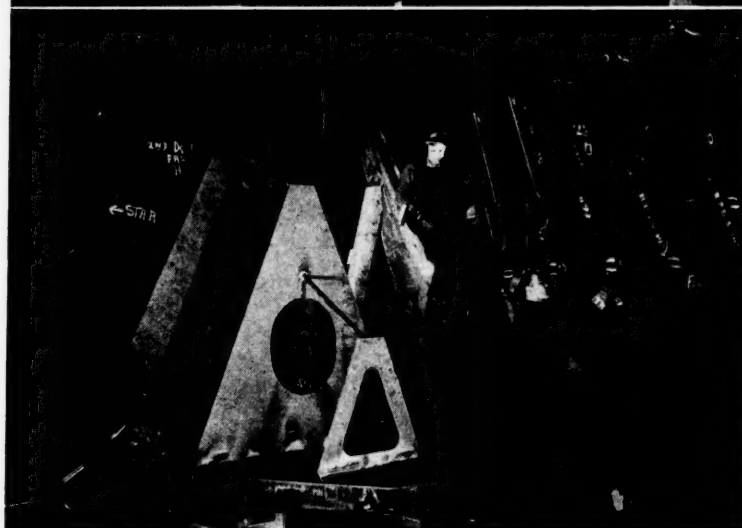
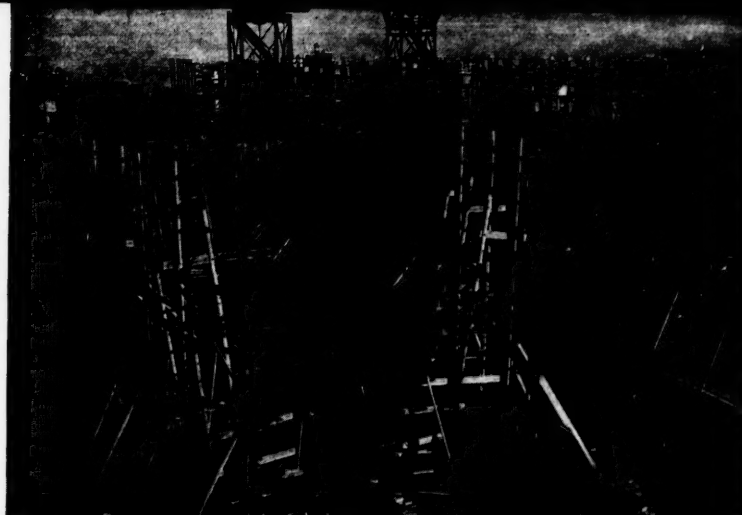
Top—With one vessel off these ways, the keel for yet another already is in place with bottom, side sheet plating and inner tank sections now being assembled. Top center—A maritime inspector checking over with the foreman, the stern assembly for a new member of the "Liberty Fleet." Lower center—Prefabricating parts of a Liberty freighter in a large Eastern plant which formerly turned out freight cars. The completed sections are then carried six miles to the ship ways on flat cars. Bottom—Two recently launched Liberty ships tied up in the fitting out basin awaiting final fittings and rigging.

Merchant ships of 2,000 tons or more flying the American flag in 1941 totaled a little over 10,000,000 tons. The President, in ordering 8,000,000 tons, asked shipyards to build in one year nearly as much tonnage as the merchant fleet had in it last fall. This merchant shipping program was in addition to a naval ship program which was even greater.

In July, 1940, there were about 60 ways available for merchant ships. The present plans call for nearly 300 ways, some being added to old yards and some being built in twenty-odd completely new yards.

Concentration in the merchant shipping program is on the 416-foot Liberties and each one delivered adds 10,500 deadweight tons to America's merchant marine. Others in the program include three main types of standard cargo vessels, ranging up to 12,600 tons; two types of large tankers, averaging about 16,500 tons; troop ships, smaller cargo ships, barges, tugs and the like.

In designing the Liberty Ship thought was given to minimum cost, rapidity of construction and simplicity of operation. In order to get engines for the Liberties in the numbers needed, a less advanced type of propulsion machinery is used. It is a triple expansion reciprocating engine of 2,500 horsepower and it can drive the ship at 11 knots. Extensive use is made of welding to save time and steel and assembly work is possible by a modification of fabrication methods. Delay in procurement is reduced by centralizing purchases of materials and equipment. A Liberty Ship carries a complement of 44 officers and men and costs upwards of \$1,600,000.



Tungsten Mineral in Texas

Announcement of the discovery of the tungsten mineral scheelite in Llano and Gillespie counties in the Central Mineral region of Texas was made recently by the Bureau of Economic Geology. Closely following this announcement, Mr. Benoit of Austin brought scheelite-bearing samples to the attention of the Bureau from another deposit in Llano County. At this locality scheelite-bearing tactite outcrops for about 1200 feet over a distance of one-half mile. Scheelite has also been found in Legion and Crabapple creeks of Gillespie County but as yet has not been traced to its source.

The discovery of scheelite in the Central Mineral region can be directly attributed to the use of an ultra-violet mineral lamp. So far as is known, this is the first time that such a lamp has been used in the area. The results obtained in the short time since the first discovery makes it appear likely that numerous other deposits will be found in the 2000-square mile pre-Cambrian area comprising the Central Mineral region, which embraces portions of Llano, Mason, Burnet, Gillespie, Blanco,

and McCulloch counties.

Large areas in Trans-Pecos Texas are also geologically favorable for the presence of tungsten. Previously scheelite had been known only in the Trans-Pecos Texas region.

As is often true with scheelite deposits in other areas, all the deposits so far discovered in Texas are small, but as yet only a small fraction of one per cent of the area favorable for scheelite has been covered by an ultra-violet lamp.

Tungsten, essential in tungsten steel, is one of the urgent war needs.

Two New Bauxite Deposits in Georgia

Two new deposits of bauxite—the chief ore of aluminum—located in the Andersonville district of Sumter and Macon counties, in west central Georgia, will aggregate more than 500,000 tons with some of it available for immediate use, according to the Bureau of Mines and the Geological Survey.

Information submitted by the Bureau of Mines and the Geological Survey after extensive investigations indicated that, out of the total of 500,000 tons of

bauxite deposits in the area, over 200,000 tons contain better than 50 per cent alumina and rate as a "grade B" ore, which is next to the best quality ore for yielding metallic aluminum.

Existing industrial processing plants can handle this grade of ore immediately after it is removed from the ground and it is probable that the remaining 300,000 tons of "Grade C" Georgia bauxite may be utilized through methods now being studied or developed both by the Bureau and private industry.

The work in the two Georgia counties has been a part of a series of projects undertaken in bauxite-bearing areas extending from Arkansas to Georgia. Three deposits in the 28th Land District of the Andersonville, Ga., area have been fully explored and measured. In addition, two drill holes have penetrated bauxite in the same land district, but the bodies of ore have not been completely outlined.

The three deposits which have been blocked out in the 28th Land District near Andersonville are summarized as follows:

Land Lot 278.—This deposit of bauxite reaches a maximum of 15 feet in thickness and averages about 5 feet. It is 20 to 70 feet under the surface of the ground, and analysis shows that it contains from 45 to 55.6 per cent alumina.

Land Lots 188 and 213.—The two deposits here average 5 feet in thickness with a maximum of 13 feet, and they are from 29 to 77 feet below the surface. The alumina content ranges from 45 to 59.2 per cent.

Lemon Grass Oil Production in Florida

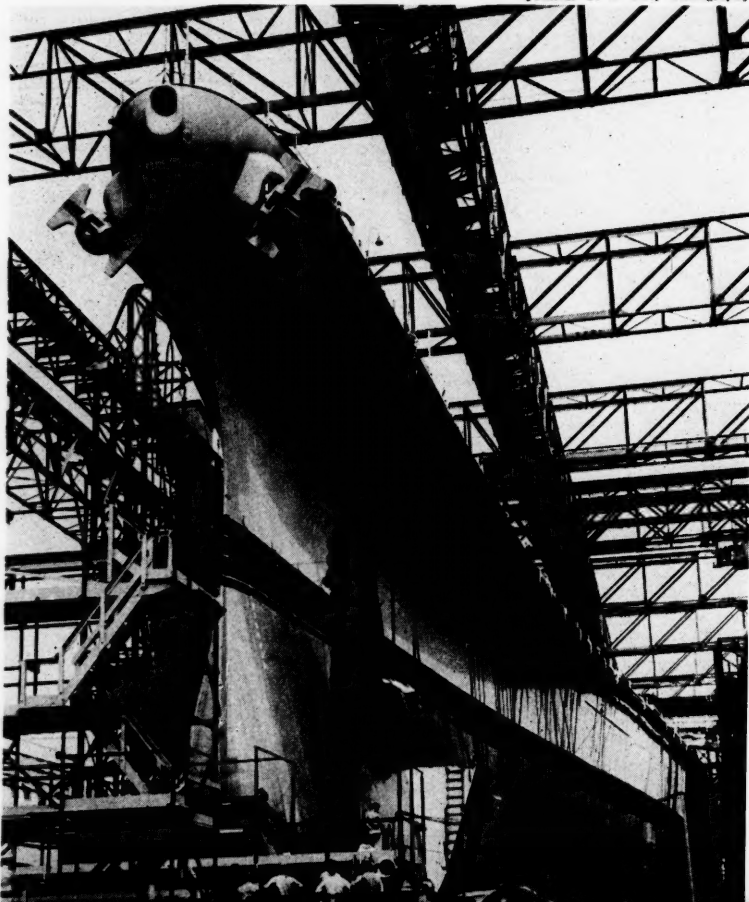
Only commercial source of lemon grass oil in the United States is now in full production at Clewiston, Fla., on a chain-line basis, states Jay W. Moran, vice-president of the U. S. Sugar Corp. With East Indian supplies cut off by the war, some 1,000 acres in the Everglades will provide about 100,000 pounds of the oil for American industry. Samples of the oil show it to be between 75 and 80 per cent pure citral, Moran said.

Harvesting is now operating on a continuous cycle of ten weeks. By the time the last acre has been cut, the first is again ready for harvesting, with the climate permitting four cuttings a year.

Lemon grass, once the oil has been extracted, also has been proven an excellent cattle feed when mixed with black strap molasses and is being used in Florida for this purpose. War, however, has prevented wide use in this field, since the government has restricted the use of molasses in order to make large supplies available for smokeless powder.

A forward view of the USS Iowa's bow shortly before her recent formal launching. The USS Iowa is a 45,000-ton battleship, has speed in excess of 30 knots and carries 16-inch guns for main batteries. The drag chains hanging by cables are dropped into the water at time of launching in order to slow the ship down as she slides into the main channel of the launching basin.

[Official U. S. Navy Photograph]



ARE WE MICE OR MEN?

By

HENRY RITTER

This is an unsolicited article from a man who to our certain knowledge has worked for wages at a skilled trade for the last sixteen years. He saw active duty in France during the last war. He is the father of a grown family with a son now in active military service. As a serious, conscientious citizen who can not be classed as a capitalist unless the owning of his own home and the carrying of a life insurance policy bring him within that much maligned class and entitle him to that questionable distinction, we think that his opinions are worthy of wide dissemination, to serve, as they say in the army "for the information and guidance of all concerned."—EDITOR.

THE people of America today face the most critical situation in the annals of their whole history.

We, all of us, are engaged in a war, world-wide in its scope; one that will tax the endurance and patriotism of our people to the utmost.

Those of us who survived and remember the last great conflict will recall the mistakes which were made and the cost in men and materials which resulted. We should resolve to avoid these same mistakes and eliminate these same abuses.

During the last war we were pestered with strikes and demands for higher and higher wages which were granted with the result that the cost of the war was pyramided and living costs skyrocketed.

These strikes coupled with the outrageous cost-plus plan of war manufacturing handicapped our war effort to such an extent that even our politicians were moved to protest.

I remember in particular an address by our then Secretary of War, Newton D. Baker, during which he promised that never

again would America be forced to send poorly equipped and partly trained men into action against veteran troops for we had learned our lesson and would guard against these abuses in the future.

We are familiar with what happened after victory was achieved. It is now a matter of record.

Have We Learned or Profited by Our Past Experience?

Well, the American public, you and I, can and should be the judge and jury. We are the ones who must pay the bills and shoulder the burdens.

Here are a few cases that I know about which make me believe similar cases exist, to some extent at least, in all of our war production plants.

1. A young man obtained a position with a shipbuilding concern and although he had had no previous experience in that type of work he conscientiously proceeded to work hard as he reasoned that the faster ships were produced the shorter the war would be. You can imagine his amazement when he was tapped upon the shoulder by a man who said he was the labor shop steward and told to take a smoke and a walk around once in a while. He was told if you keep working at that pace you will "kill it." "We want to keep this work going for some time yet."

2. A girl reports that she is employed by a radio manufacturing plant engaged in war production and that a few days ago she had about 30% of her work returned to her as rejects. Naturally she was worried and told the foreman that she would try to remedy the defects the next day. The foreman said, "If you can manage to do so, alright, but don't worry over it for you will be paid for them and so will the firm. If you do not get the time to repair them, we will throw them on the junk pile." Some of

these girls are being paid for as high as 20 hours' pay during an actual 8-hour day due to a bonus production plan in effect in this plant.

3. I have heard men who work at an aircraft factory actually boast over sleeping in the pilot compartment of a plane while one of the group acts as a lookout. I have heard other men from this same plant laughingly tell of drilling two or three holes during an entire afternoon, breaking two or three drills during the operation and then after wasting all this time discover that they had drilled them inaccurately.

4. I have seen with my own eyes, men at work at one of our shipyards and have counted as many as ten to fifteen men standing idly by watching one man at work. After a while the one who had been working would join the spectator group and one of the idlers would take over and do a little work.

5. In spite of the fact that we need able bodied men for the armed services and our women have been exhorted by the press and radio to attend schools so that they can be trained to take over some man's job, thereby releasing him for service, we know of cases of women attending these schools for periods of from six to eight weeks and then being told that they are too old or too stout to be employed when they were sent out to some defense plant for employment.

Added to the flagrant cases I have here mentioned, I am disgusted by the increasing demands by workers in the war production plants for higher wages and when in some cases they have been refused, strikes are promptly resorted to in an attempt to force the issue down our throats.

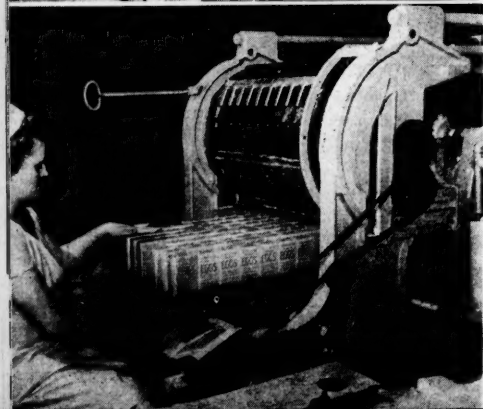
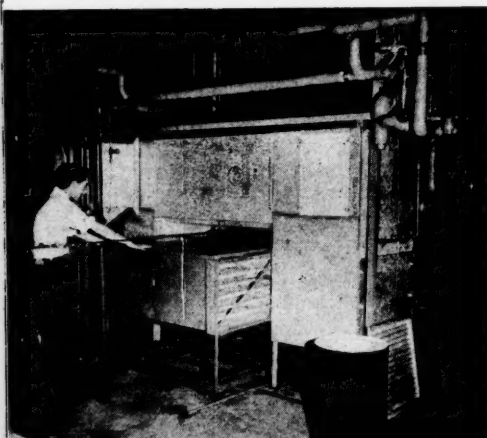
I honestly believe that the administration at Washington is almost wholly to blame for existing conditions due to the fact that organized labor has been catered to by cheap politicians who have put their selfish interests above the welfare of our country.

To cap the climax, the war workers have been coddled to such an extent that their services have actually been compared to those of our fighting men.

(Continued on page 50)

COMMERCIAL DEHYDRATION OF FOOD

MOST of the food that we eat consists of water. Eggs and meat are three-fourths water. Some vegetables contain over 90 per cent water, all contain some. From this it is easy to see that dehydrated foods have immense wartime significance, for their use saves shipping space, transportation costs, and much of the tin normally required for packaging.



Dried, sun-dried, evaporated, and dehydrated are the terms most frequently used to describe dried products. The first indicates the removal of the water content by any means whatever and the second implies drying without artificial heat. Evaporation involves the use of artificial heat. But whereas air circulation depends on natural draft in evaporation, dehydration involves the mechanical circulation of artificial heat. Hence in dehydration, temperature, humidity, and the circulation of the air are all rigidly controlled.

Properly dehydrated foods generally contain less than 7 per cent of moisture, usually about 5, and sometimes as low as 3½ per cent. In general, it takes about 10 pounds of fresh vegetables to make 1 pound of dehydrated, about 11 pounds of liquid milk to make 1 pound of dried skim, about 3 dozen fresh shell eggs to make 1 pound of dried, and about 4 pounds of raw, lean meat to make 1 pound of the dehydrated product.

The commercial dehydration of food requires equipment and control quite as specialized as does canning, and the successful operation of a dehydration plant is even more difficult than that of a cannery or of a quick-freezing establishment. Access to crops of *good quality* is of first importance. Dehydrated foods must also meet rigid specifications to make them eligible for purchase for Lend-Lease shipment or use by the armed forces.

The Department of Agriculture is actively seeking to aid canners and other food processors whose operations are curtailed because

of tin conservation and other restrictions, thus enabling them to enter the dehydration field. Blueprints of dehydrator setups for plants of different capacities, and mimeographed technical material giving information on the dehydration of specific vegetables, are being made generally available by the Department. Practical advice and guidance are being given commercial plants.

Methods must be used in dehydrating that prevent the loss of minerals, vitamins, other nutritive value, color, and flavor. Dehydrated foods must be produced which stand storage, sometimes under drastic conditions, without undue deterioration, which will ship well, and will closely resemble fresh food when finally reconstituted.

The right variety of raw material must be chosen for successful dehydration. It must have been grown properly, it must have been harvested or slaughtered at the proper time, it must be prepared promptly for dehydration, and skilled attention must be given to the preparation, dehydration, packaging, and storage of the product. The main steps in preparing fruits and vegetables for dehydration are washing, grading for size, peeling, trimming, checking, subdividing, pitting and seeding, blanching, and traying.

High-quality dehydrated food can be made only from high-quality raw material. Dehydration offers no magic to grade up low-quality products.

**An
Opportunity
for the South**

Top—Removing a truckload of dehydrated cabbage from an experimental drier. Center—Loading cabbage into the continuous steam blancher prior to dehydration. Bottom—Some of the dried egg made in the U. S. for the United Nations is packed in consumer sized cartons. After check-weighing, the 5-oz. packages are put through a machine which wraps each one in waxed paper and dips it to seal and protect the contents from moisture.

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Fruits and Vegetables

Pre-treatment is necessary to make presentable dehydrated food of good keeping quality from light-colored fruits and vegetables. The processing or blanching agent for vegetables is usually steam. Light-colored fruits are usually sulfured before dehydrating. The blanching inactivates the enzymes or ferments which are very necessary to the normal life of plants, but damaging to their quality as foods if permitted to continue activity after harvesting and storing. Steam blanching is used almost exclusively in the United States. This stops all life processes.

Dehydrated vegetables are usually packaged for lend-lease and the armed forces in 5-gallon tins with press-in lids which are spot-soldered on. Inert atmospheres are considered necessary to promote satisfactory storage for some of these commodities, either commercial nitrogen or carbon dioxide.

The yield for most vegetables is from 4 to 14 per cent of the fresh, unprepared product. To take a specific instance: 6 crates of carrots weigh about 198 pounds. They arrive at the dehydration plant fresh-pulled. They are topped, trimmed, washed, scraped, and cut into 1/4-inch disks which are spread evenly over wire trays. They are next exposed to steam for 6 minutes to blanch, and are then placed in the dehydrator at 150°-180° F. The yield from the 198 pounds of carrots is 17 pounds of dehydrate, enough to fill two 5-gallon cans. A bit of solid carbon dioxide is dropped in and the lids are sealed on with shellac. In similar manner two heads, or four pounds of cabbage, shrink to a 6-ounce disk, the shredded cabbage having been compressed into the disk when containing about 20 per cent of moisture in order to save space in the driers.

Fruits and vegetables are usually dried in tunnel-type driers. Drum (or rotary) and spray driers have been used for liquid products in the past, though meat can be dried on the former.

Apples

Considerable quantities of dehydrated, as distinguished from dried, apples are now being made commercially in this country and

Top—Dr. H. E. Goresline (right) and L. S. Stuart, bacteriologists of the U. S. Department of Agriculture, examine dried egg albumin in a laboratory drier. The material on each tray was given a different treatment to discover the best pretreatment for eggs to be dried. Center—Spray-processed milk powder goes into barrels for shipment abroad. Bottom—Ground beef that has been dehydrated, first in a double-drum drier and then in this cabinet drier is compared with a small piece of raw meat (held in lower hand) that has not been dried.

bought by the Army. Rome Beauty, Baldwin, and Stayman Winesap varieties have been found ideal for making this product. The dehydrated product weighs only one-seventh as much as the raw apples and can be reconstituted readily to make apple sauce, pie filling, or fruit for eating with cereal. The product is superior in flavor to dried fruit. It keeps well and does not sour. Dehydrated apples are being packed in airproof, 5-gallon, black-metal cans, and are now the only dehydrated fruit being purchased by the Army except lemons.

Citrus Fruit Juice Concentrates

Lemon juice is dehydrated and then mixed with 80 per cent of corn sugar to form a powder. This readily reconstitutes with the addition of water. The dehydration of citrus fruit juice and the manufacture of citrus fruit juice concentrates are now important industries.

The juice of 25 cases of oranges can be reduced to one small case of concentrate. One part of concentrated Florida orange juice requires 10 parts of water for reconstitution. To date 1,200,000 gallons of such concentrate have been shipped on Lend-Lease.

In making the concentrate, juice from fresh oranges is evaporated under reduced pressure. Whereas the fresh product contains from 10 to 15 per cent of total solids, the concentrate ends up with 65 to 70 per cent. The vitamin C content is reduced only slightly. Ordinarily the juice is pasteurized during processing, but nothing is added, neither sugar nor preservatives. Cull oranges are used in manufacturing the concentrate, i.e., fruit that is mis-shapen or blemished, but wholesome, and of which the juice is excellent.

Eggs

Outstanding in the dehydrated-

(Continued on page 50)



METALS, CHEMICALS and OTHER MATERIALS GETTING SCARCER

ALTHOUGH it is only two months ago since the MANUFACTURERS RECORD published a list showing the relative scarcity of metals, chemicals and other materials, because of the changes that have taken place and the number of items that have been added, the revised version is printed herewith in the belief that it will be of interest and value to readers.

In the first group, the available supply of materials is inadequate for war and essential civilian uses and in many instances the supply is insufficient for war purposes alone. Particular attention is directed to the serious status of

steel supplies by the classification with in this group of certain steel products marked as "very critical." Civilian industries not essential to the war effort are practically deprived of Group I materials, but can often continue production by substitution of materials in either of the following groups.

Supplies of items in Group II are sufficient for war needs and are available in fair quantities for absolutely necessary civilian requirements. In some instances, the availability is due to restrictions placed on their use for less essential purposes.

The third group lists materials in

which the supply is adequate for all types of present demands, including use as substitutions. However, while supplies of materials in this group frequently exceed demand in one part of the country, deficiencies exist in other parts. Therefore, it must be pointed out that resourcefulness is necessary in getting the items in this group into replacement use for essential military and civilian needs. Also, this may be an important factor in winning the war.

This grouping of materials represents the current situation and may be expected to change again within the next few months.

GROUP I

The available supply of the following materials is inadequate for war and essential civilian uses and, in many cases, for war purposes alone. *Indicates the most critical items.

METALS

Alloy Iron
*Aluminum
Aluminum Pigments
*Brass
*Bronze
Cadmium
Chromium

Cobalt
*Copper
Iridium
Lithium
*Magnesium
*Molybdenum
*Nickel and Nickel Alloys
Rhodium

*Tantalum
*Tin
*Tungsten
*Tungsten Carbide
*Vanadium
Wrought Iron
Zinc

SUPPLY STATUS OF CERTAIN STEEL PRODUCTS

Very Critical

*Alloy and shell Steel
*Steel Plates
*Structural Steel and Piling
*Seamless Tubing 4" and under
*Wire Rope
*Tinplate
*Stainless Steel

Critical

Sheets and Strip
Wire Products
Black and Terne Plate
Rails and Reinforcing Steel
Semi-finished Steel and Forgings
Tool Steel Bars
Pipe

CHEMICALS

*Acrylonitrile
Alcohol, Lauryl
Aluminum Trihydrate and Derivatives
Ammonia and Derivatives
Ammonium Cyanamide
Ammonium Sulphate
Anthraquinone Derivatives
Arsenic Trioxide
Benzol and Derivatives
Bleaching Powder
*Butadiene
Butyl Alcohol
Calcium Cyanamide and Derivatives

Calcium Hypochlorite
Chlorosulphonic Acid
Cobalt Chemicals
Copper Chemicals
*Cresols
Diphenylamine
Glycerol
Iron Oxide, Yellow Hydrated
Lithium Chemicals
Mannitol
Naphthalene and Derivatives
Naphthenic Acids and Derivatives
Nitric Acid

Pentarythritol
Perchloric Acid
*Phenol and Derivatives
Phosphates: Tricresyl
Triphenyl
Phthalic Anhydride and Derivatives
Silica Gel
Sodium Nitrate
Sorbitol
Sulphur Chlorides
*Toluol and Derivatives
Urea
Zinc Oxide (French)

MISCELLANEOUS PRODUCTS

Agar
Alumina (for Metal)
Asbestos (long fiber)
Balsa Wood
Bauxite, low Silica
Burlap
Carbon Black (Furnace)
*Copra
Corundum
Cotton: Chemical Pulp

Duck
*Linters
Raw, Long Staple
Diamond Dies, fine sizes
Down
Feathers (Goose & Duck up to 4")
Gasoline, Aviation
Graphite (Crucible Grade)
Hemp: Agave Fiber
Henequen

*Manila Fiber
Cordage
Seed
Sisal
Jute
Kapok
Kyanite
Lumber: All structural
Grades; No. 1 and 2: So. Pine, Doug.
Fir, West. Hemlock, Sitka Spruce.

No. 2 a
Pine. E
woods
Methyl M
Sheets
Mica, Bl

Nylon
Oils: Ca
*Co
Ole
Pa
Ra

Materials

Antimon
Berylliu
Bismuth
Calcium
Columbi

Acetic A
Acetic A
Acetone
Alcohol

Acrylic
Alkyd I
Alumin
Aniline
Atebrin
Bromin

Albumi
Alpha I
Alumin
Cadmium
Celloph
Cellulose
Deriv
Chrom
Cobune
Coke, I
Cork
Cotton
Cryolit
Diamon
Ester C
Flax
Glues,
Hair, I
Haloge

Material

Ferrob
Ferro
Gold

Alumin
Barium
Borax
Camp

Group I, Miscellaneous Products (Continued)

No. 2 and 3: White Pines and Pond.
Pine, F. A. S., Sel. and No. 1: Hard-
woods except Gums
Methyl Methacrylate
Sheets
Mica, Block
Condenser Film
Nylon
Oils: Cashew Nut Shell
*Coconut
Oiticica
Palm Kernel
Rapeseed

Sperm
*Tung
Phenol-Formaldehyde
Pig or Hog Bristles (3"—)
Polystyrene
Polyvinyl Chloride
Pyrethrum
Quartz Crystals
Quinine
Rayon, High Tenacity
Rotenone
Rubber: *Chlorinated
*Crude

*Latex
Reclaimed
*Synthetic
Shearlings
*Shellacs
Silk: *Raw
*Noils and Waste
*Garnetted
Reclaimed
Spodumene
Talc, Steatite
Teak
*Tung Oil

GROUP II

Materials that are essential to the war industries but the supplies of which are not as limited as those in Group I.

METALS

Antimony
Beryllium-Copper
Bismuth
Calcium
Calcium-Silicon
Columbium

Ferrosilicon
Ferrotitanium
Iron: Gray Cast
Malleable
Pig
Mercury
Platinum

Ruthenium
Silicomanganese
Silicon and Alloys
Silver
Spiegeleisen
Zirconium and Alloys

CHEMICALS

Acetic Acid
Acetic Anhydride
Acetone
Alcohol: Amyl
Ethyl
Methyl
Acrylic Acid and Acrylates
Alkyd Resins
Aluminum Chemicals
Aniline and Derivatives
Atebrine (for Quinine)
Bromine

Butyl Acetates
Chlorates and Perchlorates
Chlorinated Hydrocarbon Solvents and
Waxes
Chlorine
Chromium Chemicals
Citric Acid
Ethers
Formaldehyde
Glycol
Iodine
Isopropanol

Ketones
Lactic Acid and Lactates
Maleic Acid and Anhydride
Manganese Chloride, Anhy.
Molybdenum Chemicals
Nickel Chemicals
Phosphorus
Phosphorus Oxichloride
Phosphorus Pentoxide
Potassium Permanganate
Strontium Salts
Xylol

MISCELLANEOUS PRODUCTS

Albumin, Blood
Alpha cellulose (Wood Pulp)
Aluminum Oxide Abrasives
Cadmium Pigments
Cellophane
Cellulose Nitrate, Acetate and other
Derivatives
Chrome Pigments
Cohune Nuts and Kernels
Coke, Petroleum
Cork
Cotton Seed (SXP)
Cryolite
Diamonds, Industrial
Ester Gum
Flax
Glues, Animal and Vegetable
Hair, Horse-Tail and Mane
Halogenated Hydrocarbon

Refrigerants
Hides
Leather
Lumber:
Select Grades Co. Pines and West
Coast No. 1 and Select West. Pine
Ass.
Magnesite
Mercury Pigments
Methyl Methacrylate Powder
Molasses
Natural Gas
Natural Resins, (except Rosin)
Oils: Babassu
Castor
Fish Liver
Fish
Linseed
Neatsfoot

Palm
Pine
Paraffin
Rayon Filament, Staple Fibre
Refractories (domestic)
Andalusite
Dumortierite
Kyanite
Sillimanite
Rutile
Silicon Carbide Abrasives
Tanning Materials
Tetraethyl Lead
Urea-Formaldehyde
Vinyl Plastics and Resins
Vinylidene Chloride Plastic
Vitamin "A" Products
Vulcanized Fiber
Wool

GROUP III

Materials that are available in significant quantities as substitutes for less available materials, and materials that are available in large amounts unless restrictions are imposed by labor, manufacturing, or transportation difficulties.

METALS

Ferroboron
Ferromanganese
Gold

Indium
Lead

Osmium
Palladium
Sodium

CHEMICALS

Aluminum Sulphate, Comm.
Barium Carbonate
Borax and Boric Acid
Campher

Caustic Soda
Chromic Acid for Plating
Muriatic Acid
Nicotine Sulphate

Soda Ash
Sodium Silicates
Sodium Silicofluoride

(Continued on page 56)

NEW PRIORITIES

PUT IN EFFECT DURING AUGUST

Agave Fiber—M-84 (as amended 8-5-42) reduces the number of uses for which agave fiber may be processed. M-84 (as amended 8-5-42) Amend. #1 gives processors until Aug. 31 to file application for permission to process more fiber than their quota to fill Army and Navy orders.

Air Transportation Facilities—P-47 Amend. #2 raises preference ratings to A-1-a for materials necessary for maintenance and repair of airline aircraft.

Alcohol—M-30 (as amended 8-8-42) decreases amount of ethyl alcohol that may be used in manufacture of shoe polish and increases amount to be used for vinegar.

Aluminum—M-1-i revokes order M-1-e and M-1-f and consolidates their provisions, with changes, in a combination conservation and use-control order. Also limits use of aluminum for armed forces to "implements of war." Use forms PD-26, 40A, 97 and 500.

Antimony—M-112 (as amended 7-11-42) Amend. #1 permits use of a higher content in manufacture of grids for automotive batteries.

Aromatic Petroleum Solvents—M-150 (as amended 8-29-42) establishes complete allocation control effective October 1. Benzol and toluol are not included. Use forms PD-600 and 601.

Balsa Wood—M-177 places strict control on sale and use. Also freezes all consumer stocks amounting to over 100 board feet and prohibits use except for specific purposes. Use form PD-423.

Bicycles—L-52 Amend. #2 reduces permitted manufacture to 10,000 per month and concentrates entire production in two plants.

Cans Made of Tinplate or Terneplate—M-81 (as amended 6-27-42) Amend. #2 permits unlimited packing of tomato pulp or puree in small as well as large cans for remainder of season. Supplementary order M-81-b is revoked effective 9-2-42.

Cattle Tail Hair—M-210 restricts sale and delivery to armed services effective Sept. 2.

Cement (Portland)—L-179 reduces to three the number of types of cement which may be produced. L-179 Amend. #1 postpones to Sept. 30 the provision of original order which prohibited exclusive allocation of storage space for Portland cement to any customer.

Chemicals—M-171 Amend. #1 permits stock piling of chlorate chemicals by large industrial users. M-41 Amend. #1 doubles the quantity of chlorinated hydrocarbon solvents which certain users may consume prior to Sept. 30. L-11 Amend. #2 removes restrictions on "brightness ceilings" of 100% rag content paper in so far as chlorine is concerned. M-196 places soluble nitrocellulose under complete allocation control except for deliveries of less than 232 pounds to one person per month which are not restricted: use forms PD-

609 and 610. M-196 Amend. #1 removes from restrictions of order nitrocellulose suitable for dynamite manufacture, and takes undissolved film scrap out of allocation control.

Chlorinated Paraffin—M-189 places the entire supply, which is used by the Army, Navy and Maritime Commission, under complete allocation control.

Cobalt—M-39-b Amend. #2 reduces amount used in any one quarter for ground coat frit to 35% of amount used in first six months of 1941.

Coffee—M-135-c Amend. #1 reduces quotas by 10 percent

Combed Cotton Yarns—M-155 Amend. #1 gives manufacturers extension to Nov. 2 in which to begin earmarking parts of production for use by armed forces.

Construction—L-41 (as amended 9-2-42) drastically cuts amount of civilian construction to be allowed without specific authorization. Use form PD-200.

Construction Lumber—L-121 (as amended 7-10-42) Int. #1 states restrictions not intended to cover specific stocks known in trade as "Clears, Thick Finish," etc., of any species of softwood lumber in sizes three inch and thicker. L-121 (as amended 7-10-42) Amend. #2 extends original order to Aug. 27.

Copper—M-9-a (as amended 8-1-42) places all deliveries under complete allocation control. M-9-b (as amended 8-3-42) transfers from M-9-a to M-9-b the control of allocation to foundries and ingot makers. M-9-c (as amended 5-7-42) Amend. #5 permits clothing manufacturing industry to affix to clothing, copper and copper-plated insignia and costume jewelry already fabricated. M-9-b (as amended 8-3-42) Amend. #1 requires proof from foundries and ingot makers that they are entitled to receive deliveries of copper, alloy ingots or copper scrap. M-9-c (as amended 5-7-42) Amend. #6 carries agreement from Army, Navy and Maritime Commission as to rigid restrictions confining copper to vital war uses.

Cotton—M-197 (as amended 9-2-42) relaxes restrictions on sale and delivery of American extra staple cotton: use form PD-597. M-117 (as amended 9-2-42) relaxes restrictions on sale and delivery of important Egyptian cotton: use form PD-597.

Cotton Linters—M-12 (as amended) Amend. #1 directs total supply be sold to Commodity Credit Corporation exclusively.

Cotton Textiles for Essential and Surgical Products—M-134 (as amended 8-25-42) assigns rating of A-2 to orders for fabrics suitable for manufacturing into industrial tape, surgical dressings and laminated phenolic products. M-134 Sch. #I list fabrics suitable for industrial cloth or tape. M-134 Sch. #II lists fabrics suitable for surgical dressings. M-134 Sch. #III lists fabrics suitable for laminated phenolic products.

Cotton Textiles for Work Apparel—M-207 authorizes WPB to control cotton textiles used in making work apparel. M-207 Sch. #I lists fabrics to which A-2 rating may be assigned for making men's work clothing. M-207 Sch. #II lists fabrics to which A-2 rating may be assigned for making work gloves.

Cutlery—L-140 Amend. #1 exempts orders placed by War Shipping Administration and military orders by jobbers, wholesalers and other dealers.

Cyanamid—M-165 Amend. #1 places derivatives of cyanamid under complete allocation control including cyanides, melamine, guanidine and dicyandiamide.

Dairy Products Plants (Repair, Maintenance, etc.)—P-118 Int. #1 states that preference ratings assigned are only for primary processing phases.

Dried Fruit—M-205 freezes entire 1942 production and carry-over from 1941 crop in the hands of packers of dried apples, apricots, peaches, pears, prunes and grapes, to make them available for armed forces and lend-lease. Supply not purchased by government to be released for civilians; use forms PD-624 and 625. M-205-a requires any person who purchases or accepts delivery of more than 100 pounds of raisin variety grapes to use them only in production of raisins.

Elastic Fabrics, Knitted, Woven or Braided—M-174 (as amended 8-26-42) freezes stocks of all fabrics up to six inches in width in hands of manufacturers and jobbers. Restrictions on sale, distribution and use also tightened.

Electric Fuses—L-161 prohibits use of metal or its alloy to manufacture parts for fuses effective Sept. 15. Also prohibits assembly of fuses with copper parts other than parts carrying current effective Sept. 24. Use form PD-1X.

Elevators—P-72 and all amendments revoked effective Sept. 1.

Farm Machinery—L-26 (as amended 7-14-42) Amend. #1 authorizes producers to distribute material between groups established under original order as amended, provided they do not exceed their over-all production quotas. L-26-b is revoked effective Aug. 27 as it is superseded by Priorities Reg. #13. P-95 revoked effective Aug. 31.

Film—L-178 freezes all motion picture film in hands of manufacturers. Application must be made to WPB to acquire unexposed 35 mm. film, except armed services.

Fluorescent Lighting Fixtures—L-78 Amend. #3 extends original order to October 1.

Furniture—L-13-a (as amended 8-5-42) prohibits manufacturers from working on any order—including armed services, unless specifically authorized by WPB: use forms PD-423 and 500. L-13-b prohibits production of wood upholstered furniture containing any iron or steel other than joining hardware, effective Nov. 1.

Gas (Manufactured)—L-174 restricts delivery to new industrial and domestic consumers. Use form PD-628.

General Industrial Equipment—L-123 Amend. #1 raises preference rating

(Continued on page 42)

Southern Construction Awards Total

\$284,694,000 During August

South's Construction by Types

	August, 1942 Contracts Awarded	Contracts to be Awarded	Contracts Awarded First Eight Months 1942	Contracts Awarded First Eight Months 1941
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$350,000	\$125,000	\$3,926,000	\$13,338,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	155,000	20,000	4,300,000	20,600,000
Residential (Apartments, Hotels, Dwellings)	6,182,000	1,068,000	92,582,000	69,388,000
Office	50,000	1,047,000	11,427,000
	\$6,737,000	\$1,513,000	\$101,855,000	\$114,753,000
INDUSTRIAL				
	\$25,131,000	\$27,566,000	\$936,455,000	\$902,505,000
PUBLIC BUILDING				
City, County, State, Federal	\$221,813,000	\$106,803,000	\$1,301,511,000	\$557,192,000
Housing	11,026,000	4,725,000	177,040,000	90,324,000
Schools	3,669,000	4,101,000	27,002,000	25,945,000
	\$236,508,000	\$115,629,000	\$1,505,553,000	\$673,461,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	\$3,637,000	\$11,774,000	\$278,173,000	\$103,698,000
Federal, County, Municipal Electric	100,000	100,000	12,987,000	35,095,000
Sewers and Waterworks	3,628,000	9,739,000	50,103,000	15,730,000
	\$7,365,000	\$21,613,000	\$341,263,000	\$154,523,000
ROADS, STREETS AND BRIDGES				
	\$8,953,000	\$12,539,000	\$114,896,000	\$112,169,000
TOTAL	\$284,694,000	\$178,860,000	\$3,000,002,000	\$1,957,411,000

Two of these divisions have maintained prominence in the last two years. They are public building and industrial construction. When eight months of 1942 had elapsed, public building predominated with a total of \$1,505,553,000. Industrial construction occupied the second position, with awards placed at \$936,455,000.

The positions of these two types of work were reversed in 1941. Total for the industrial work was \$902,505,000; for public buildings \$673,461,000. Comparative eight-month statistics on the three other types of work, as tabulated by the *Manufacturers Record*, are:

Type	1942	1941
Private Building ..	\$101,855,000	\$114,753,000
Engineering	\$341,263,000	\$154,523,000
Highways	\$114,896,000	\$112,169,000

Southern construction totaled \$284,694,000 in August. There was a decrease also in the industrial field. Private building alone was stronger. This anomaly was due to a spurt in residential projects.

Industrial construction amounted to but \$25,131,000 in August, as Federal authorities ruled against most new expansions. At the same time the War Department accelerated announcements covering a large number of projects, which substantially raised the public building total in face of a drastic drop in public housing.

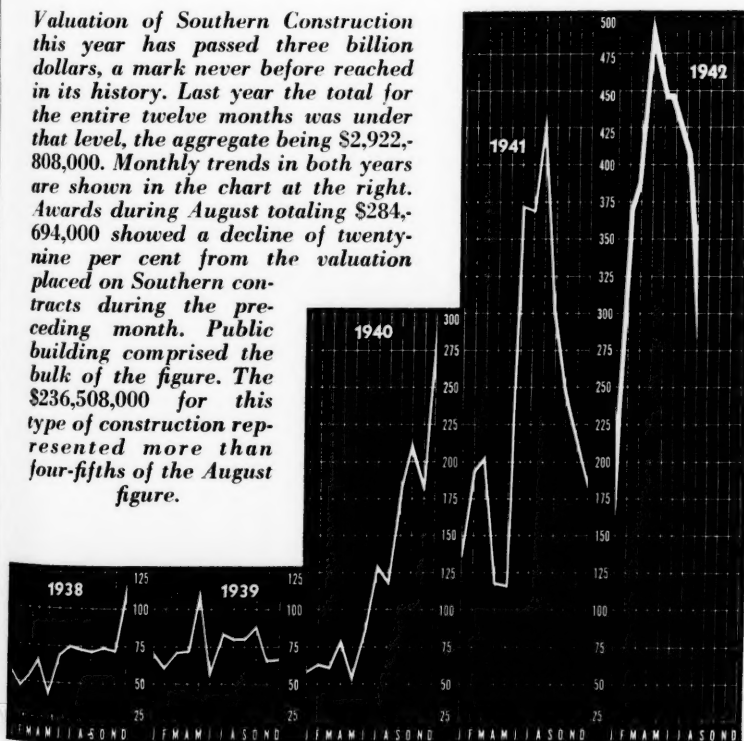
Public building in August accounted for more than four-fifths of the \$284,694,000 total for the month. The trend of activity in other types of construction excepting industrial building was reduced. (S.A.L.)

THE \$3,000,022,000 total for construction in the sixteen Southern States for the eight months of 1942 will outrank similar periods of all previous years. The closest approach to this peak was for a whole year recorded in 1941, when awards in the South amounted to \$2,922,808,000. Annual totals for other years in the last decade are:

Year	Total
1940	\$1,534,350,000
1939	925,981,000
1938	831,481,000
1937	810,055,000
1936	939,204,000
1935	417,925,000
1934	509,874,000
1933	380,538,000
1932	428,237,000

The divisions of Southern construction, as statistically reported by the *Manufacturers Record*, are private building, industrial construction, public building, engineering work and roads, streets and bridges. Composition of these divisions is indicated in the tabulation published on this page.

Valuation of Southern Construction this year has passed three billion dollars, a mark never before reached in its history. Last year the total for the entire twelve months was under that level, the aggregate being \$2,922,808,000. Monthly trends in both years are shown in the chart at the right. Awards during August totaling \$284,694,000 showed a decline of twenty-nine per cent from the valuation placed on Southern contracts during the preceding month. Public building comprised the bulk of the figure. The \$236,508,000 for this type of construction represented more than four-fifths of the August figure.



Important New Industrial Plants and Expansions in the South During August

ALABAMA

De-tinning Plant—War Production Board, Washington, D. C., authorized Defense Plant Corporation to proceed with construction of de-tinning plant estimated to cost \$750,000; plant will have annual output of more than 40,000 tons; H. K. Ferguson Co., The Hanna Bldg., Cleveland, Ohio, will handle construction.

HOLT—chemical plant—Cunningham Rudy Co., Detroit, Mich., care of Mr. Jensen, 1006 First National Bank Bldg., Tuscaloosa, has contract at \$2,000,000 for chemical plant for Reichhold Chemicals, Inc., 601 Woodward Heights, Ferndale, Detroit, Mich.; Don B. Schuyler, Engr., Tuscaloosa; project includes 7 buildings; soon call for sub-bids.

Warehouse—L. E. Whaley, Troy, Ala., has contract for warehouse in various Alabama cities for Georgia-Florida Peanut Association, J. D. Gardner, Atty. at Law, Camilla, Ga.

FLORIDA

Pipe Line—Anderson Brothers of Salem, Ill., has contract for taking up north half of American Liberty Pipe Line Co.'s 200-mile 8-in. East Texas-Gulf Coast line for relaying across N. Florida; Fredell Construction Co., Stewart Bldg., Houston, contract for taking up south half; Trans-Florida Pipe Line Co., formed with Toddle L. Wynne, head of American Liberty, Pres., to operate line.

COCONUT GROVE—shipbuilding plant—Miami Shipbuilding Corp., 615 SW 2nd Ave., Miami, let contract to Rodney Miller, Inc., 4220 Ponce de Leon Blvd., Coral Gables, for construction of shipbuilding plant; Jorgensen & Schreffler, Architects, Miami.

COCONUT GROVE—shop building—Shelley Tractor & Equipment Co., 3650 Bird Ave., let contract to Witters Construction Co., Alton Rd., Miami Beach, for addition to shop building.

GEORGIA

ARLINGTON—warehouse—R. J. Edgerly Co., Albany, has contract for peanut storage warehouse on east side of Seaboard R. R.; 60 x 176 ft., also in other Georgia cities; storage capacity of 3500 tons; Frank Haddon will supervise work; Georgia-Florida Peanut Association, owner.

ATLANTA—building addition—Chevrolet Motor Co., McDonough Blvd., SE, let contract to Barge-Thompson Co., 136 Ellis St., NE, for alterations and additions to building.

ATLANTA—superstructure and plumbing, etc.—MacDougald Construction Co., Hemphill Ave., N. W., has contract for superstructure, Buckhead Plumbing & Heating Co., 3651 Peachtree Rd., N. E., has contract for plumbing and Tri-State Construction Co., 114 Ellis St., N. E., has contract for storage building for Marietta Aircraft Assembly Plant, for U. S. Area Engr., Bellcraft; Robert & Co., Engrs., Bellcraft.

COLUMBUS—cold storage unit—Nehi Corp., started work on a 2-story, brick cold storage building, 1105 Tenth Ave., near main plant; cost \$40,000; T. F. Lockwood, Archt.

DONALDSONVILLE—warehouse—A. C. Knight, Albany, has contract for warehouse for Morris Shingler.

KENTUCKY

LOUISVILLE—aircraft plant—Struck Construction Co., 147 N. Clay St., has contract at \$12,000,000 for plant for Curtiss Wright Corp., Buffalo, New York; Albert Kahn & Associates, Engrs., Detroit, Mich.; receiving sub-bids.

LOUISIANA

Pipe Line—U. S. Engineer Office, New Orleans, let contract to Barnett Brezner, Alexandria, La., for gasoline pipe line and dispensing system in Rapides Parish; \$50,000.

Contracts Awarded

NEW ORLEANS—power house foundations—New Orleans Public Service, Inc., let contract to Boh Bros. Construction Co., 2400 Cypress St., New Orleans, for driving piles, concrete foundation, and foundations for machinery in connection with proposed additions and changes to existing power house; concrete roof to be erected in square of S. Peters, Orange, Market and Water Sts.; Ebasco Service Co., Designing and Consulting Engrs.

MARYLAND

BALTIMORE—alterations—American Can Co., let contract to Davis Construction Co., 9 W. Chase St., for alterations to building at 3525 Hudson St.

BALTIMORE—alterations—Trueson Steel Co., The Koppers Co., lessee, let contract to Morrow Bros., Inc., 14 E. Eager St., for alterations to building at 1501 Bush St.

BALTIMORE—building—Cogswell Construction Co., 513 Park Ave., has contract for building 600 block S. Pulaski St., for John C. Knipp & Son; 1-story; masonry; 97 x 120 ft.; James R. Edmunds, Jr., Archt., Calvert Bldg.

BALTIMORE—metal storage tanks—Continental Roofing Mills, 1500 S. Ponca St., let contract to McNamara & Co., Clarkson and McComas Sts., Baltimore, to erect two metal storage tanks.

BALTIMORE—oil storage—Crown Cork & Seal Co., Eastern Ave. and Kresson St., let contract to Frantz Construction Co., 10 W. Chase St., to erect oil storage building on Eastern Ave.; Lucius R. White, Jr., Archt., 10 W. Chase St.

FAIRFIELD—control house—Maryland Dry Dock Co., let contract to Cogswell Construction Co., 513 Park Ave., Baltimore, for construction of control house; J. E. Greiner Co., Engrs., 1201 St. Paul St., Baltimore.

FAIRFIELD—paint shop—Consolidated Engineering Co., Inc., 20 E. Franklin St., Baltimore, has contract for paint shop, concrete and steel, 1-story, for Bethlehem Steel Co.

OWINGS MILLS—addition—Cogswell Construction Co., 513 Park Ave., Baltimore, has contract for office addition for Hunter Distillers Co., Inc.; 1-story; brick.

MISSISSIPPI

PASCAGOULA—office building—Ingalls Shipbuilding Corporation of Pascagoula let contract to Brice Building Co., Birmingham, Ala., to erect frame office building; plans and specifications by Jack B. Smith, Archt., Martin Bldg., Birmingham.

MISSOURI

ST. LOUIS—foundry building—McQuay-Norris Manufacturing Co., 2320 Marconi, let contract to Fruin Colnon Contracting Co., 408 Olive, to erect 1-story foundry building at 2320 Marconi Ave.; 82 by 242 ft., composition roof; cost \$35,000; J. J. Jahn Hoener and W. J. Hubbard, Architects, 3415 S. Kingshighway.

ST. LOUIS—office building alterations—Union Electric Co. of Missouri, 12th & Locust St., starting work at once on office building alteration; Klipstein & Rathmann, Archt., 316 N. 8th St.; William C. E. Becker, Struc. Engr., 1018 Ambassador Bldg.; John D. Falvey, Mech. Engr., 316 N. 8th St.; Gamble Construction Co., 620 Chestnut St.; Sodemann Heat & Power Co., 2306 Delmar Blvd., has contract for heating and ventilating; Mid-City Plumbing & Engineering Co., 3925 Washington Ave., plumbing; S. C. Sachs Co., 2022 N. 9th St., electrical work; work consists of alteration to south wing and sub-basement and basement.

NORTH CAROLINA

Extension—Jack Dover, Pres., of Dora Mill at Cherryville, and Dover Mill at Shelby, has building expansion underway; erecting unit, 2-story, 50 x 150 ft., to provide space

for storage of 1200 to 1500 bales of cotton at Dover Mill and a picker room at Dora Mill; work by company supervision.

TENNESSEE

Concrete and Steel Buildings—U. S. Engineer Office, Nashville, let contract to Hercules Powder Co., Wilmington, Del., to construct concrete and steel plant buildings in Tennessee.

CHATTANOOGA—expansion—Chattanooga Stamping and Enameling Co., Mrs. Rd., George H. Patten, Pres., plans expansion program to triple production of plant; acquired building, 120 ft. wide and 806 ft. long at Lenoir City, Tenn., and will move to position across road from present plant; also purchased two 10-ton and one 7.5 ton cranes; R. H. Hunt Co., Chattanooga Bank Bldg., Archt.; James Verhey, 3813 Monte Vista Drive, general contractor; Lloyd E. Jones Co., 1800 Central Ave., has contract for steel work erection and R. D. Scott, for excavation; of steel with lower section of brick; install modern lighting system; \$500,000.

UNION CITY—addition—Reynolds Packing Co., Jeff Yarbrough, let contract to Gene Harrison, for addition to plant; 1-story; 48 x 96 x 113 ft.; brick; composition roof; electric wiring; heating; plumbing; etc.; cost \$30,000.

TEXAS

CORPUS CHRISTI—plan—American Cyanamid Corp., 538 Fifth Ave., New York let contract to Chemical Construction Co., Heep Bldg., Leopold St., Corpus Christi, for chemical plant off Navigation Blvd.; \$500,000; P. S. Shroy, Supv. Engr.; J. A. Landy, Asst.

CORPUS CHRISTI—storage building—Cage Implement Co., 2025 Leopold St., erect storage building; day labor; 40 x 60 ft.; concrete floors.

DALLAS—pipe line—W. G. Hanrahan, 5500 Holmes St., Dallas, has contract for 20 miles of pipe line to be laid between refinery at West Dallas to McKinney for Texas Pipe Line Co.; right of way being cleared.

HOUSTON—convert and remodel refinery—Sinclair Oil & Refining Co., let contract to M. W. Kellogg Co., Engrs. and Contrs. Bankers Bldg., to remodel and convert refinery into 100-octane gas plant.

JACKSONVILLE—iron ore plant—Sheffield Steel Co., Sheffield Station, Kansas City, Mo., let contract to Arthur G. McKee Co., 1918 Texas St., El Paso, for iron ore mining unit in Mount Haven area, west of Jacksonville; Missouri Pacific Lines will construct a spur track 13 1/2 miles long to serve the plant; local address of contractor, Jacksonville.

PORT NECHES—pipe line—Shell Petroleum Company has used pipe for constructing 10-in. line across the county; J. E. Hart, in charge of unloading; Industrial Engineering Co., in charge of treating the line and laying 76 mile; company reported to put in a pumping station south of Port Neches.

PORT NECHES—rubber plant—Babcock and Wilcox Co., 85 Liberty St., New York will erect string of towers for butadiene plant of Neches Butane Products Co.; steel being assembled; Winston Brothers, general contractor for \$40,000,000 rubber plant of B. F. Goodrich Rubber Co., Akron, Ohio, assembling lumber and other materials preparatory to beginning work; Lummus Co., 420 Lexington Ave., New York, general contractor for butadiene plant, has laid several access roads of shell, leading off Dearing St., to the tract; Goodrich Co. will have headquarters at intersection of Avenue F and Main St.

SHERMAN—pipe line—Texas Pipe Line Co., let contract to N. A. Saigh Co., Engrs. and Constructors, 511-512 Builders Exchange Bldg., San Antonio, for construction, which has already begun on approximately 80 mi. 8-in. and 10-in. pipe line beginning at Sher-

man and ending at Coalgate, Okla.; work expected to be completed within 60 working days; one subcontractor has been retained—J. B. Barbour Trucking Co., Iowa Park, Tex., to haul pipe on the right-of-way; the new process weld is being used, which consists of pre-heating two ends of the two pieces of pipe, after lining them up, and holding them with a clamp operated hydraulically; ends are then heated by a series of oxygen jets and when the proper temperature has been reached the two ends are rammed together by a hydraulic ram; this process increases the speed of the weld and eliminates the use of welding rod—a critical material—as well as the use of welders.

SMITHS BLUFF—refinery work—Pure Oil & Refining Co., let contract to The Lummus Co., on site, to construct refinery buildings, install equipment and general conversion of plant into high octane producing plant; reinforcing steel awarded to Consolidated Steel Corp., Orange, Tex.

TEXAS CITY—pump and control houses—Pan American Refining Corp., will build structural steel frame and masonry buildings to house pumping and control equipment; concrete foundation, built-up roof; cost \$50,000; owner builds with day labor and subcontracts; awarded masonry contract to James Kennedy, Galveston, Texas.

TEXAS CITY—service building—Monsanto Chemical Co., erect 1-story service building; frame and masonry; Eslinger-Mish Corp., Texas City, Engr. and Bldr.

TEXAS CITY—remodel refinery—Southport Gasoline Products Co., let contract to E. B. Badger Co., LaPorte Road, Houston, to remodel refinery and convert into high octane products plant.

VIRGINIA

NEWPORT NEWS—foundry—Newport News Shipbuilding & Dry Docks Corp., let contract to Virginia Engineering Corp., Masons Creek Rd., Norfolk, for \$100,000 steel foundry.

RICHMOND—plant—Carter-Venable Co., Tenth and Canal Sts., dealers in hay, grain, flour, mill-feed, grass and field seeds, awarded contract to Charles W. Spittle, 1117 East Cary St., Richmond, for rebuilding plant recently burned; 45 by 145 ft., 3 stories, brick.

SOUTH

GFA Peanut Association, J. D. Gardner, Attorney at Law, Camilla, Ga., is erecting or preparing to erect warehouses in following named towns and cities: Camilla, Dublin, Sylvester, Bainbridge, Colquitt, Edison, Ashburn, Hawkinsville, Arlington, Quitman, all Georgia; Dothan, Enterprise, Greenville, Opp, Abbeville, Luverne, Ozark, and Samson, all Ala.; construction is going on in the following places: Edison, Camilla, Bainbridge, Sylvester, Arlington, Ga., and Dothan, and Enterprise, Ala.; buildings will be of uniform size; 56 x 176 ft.; conc. floor; asbestos weather-board and comp. roof; estimated cost \$35,000 per unit; Association has procured services and equipment of a construction firm to build these projects.

Contracts Proposed

ARKANSAS

Generating Station—Southwestern Gas & Electric Co., Frank M. Wilkes, Pres., 428 Travis St., Shreveport, La., plans to construct power generating plant on Caddo Lake of the gas-steam type with generating capacity of 30,000 kilowatts, initially; cost about \$3,000,000; Sargent & Lundy, Inc., Engrs., 140 S. Dearborn St., Chicago, Ill.; company up to this time has not been able to secure a priority rating on project to permit immediate construction.

Power Line—Arkansas Power & Light Co., Pine Bluff, has contract to supply approximately 4000 kw. per hour of electric service to operate 4 pumping stations that will be used on 10-in. petroleum pipe line from near El Dorado to Helena; company will expend approximately \$50,000 in building about 35 miles of transmission line, installing substations and switching equipment and other system additions to serve El Dorado-Helena line.

DISTRICT OF COLUMBIA

WASHINGTON—expansion—Potomac Electric Power Co., a unit of North American Co., 10th & E Sts., N. W., Washington, D. C., filed with Securities & Exchange Commission a registration covering the proposed issue of \$5,000,000 of 3 3/4 per cent first mortgage bonds, due 1977; proceeds will be used to increase company's generating capacity; company, a subsidiary of Washington Railway & Electric Co., will invite sealed bids for purchase of bonds under SEC's competitive bidding rule.

FLORIDA

Pipe Line—American Liberty Pipe Line Co., Dallas, Tex., organized new company, Trans-Florida Pipe Line Co. to operate new gas line across North Florida; work of removing the East-Texas-Gulf 200 mile oil pipe line and shipping it to Florida where it will be relaid has been started.

GEORGIA

Station and Office Building—Plantation Pipe Line Co., Healey Bldg., Atlanta, has low bid from Jiroud Jones Construction Co., Walton Bldg., Atlanta, for construction of station and office building at Winder, Austell, and Hartwell, all in Georgia.

ATLANTA—plumbing—Following are estimating bids opened Aug. 8 for plumbing, Marietta Aircraft Plant; Robert & Co., Engrs., Bellcraft; Buckhead Plumbing & Heating Co., 3051 Peachtree Rd., N. E.; O'ory Plumbing & Heating Co., Bona Allen Bldg., both Atlanta; Kerney-Sanders, Inc., New York City; Markowitz-Resnick, 1220 Biscayne Blvd., Miami, Fla.; Standard Engineering Co., 2129 I St., N. W., Washington, D. C.; J. M. Gallagher, 119 Fifth Ave., N., Nashville, Tenn.

KENTUCKY

Plant—Defense Plant Corporation will construct plant for manufacture of wooden aircraft sub-assemblies, to be operated by Mengel Co., Louisville; 254 by 700 ft., with 3-story shop; bids opened; Tistig & Lee, Archts., 34 W. 6th St., Cincinnati, Ohio.

CATLETTSBURG—high octane refinery—Paul G. Blazer, Pres., Ashland Oil and Refining Co., Ashland, Ky., announces plant costing several millions of dollars for refining high octane gas will be built near Catlettsburg for production of aviation gasoline; financed by Defense Plant Corporation; through contract with the Government, Ashland Oil and Refining Co. may purchase plant later.

LOUISVILLE—synthetic rubber plant—Joseph E. Seagram & Sons Co. has submitted plans to War Production Board for synthetic rubber plant to utilize new glycol process developed in Seagram laboratories; Smith, Hinchman & Grylls, Engrs., Detroit, Mich.

MADISONVILLE—furniture plant—S. J. Campbell Co., 1335 W. Altgeld St., Chicago, Ill., will operate a plant for manufacture of upholstered furniture; will occupy Burchfield warehouse.

Pipe Line—Kentucky Tennessee Natural Gas Corp., Suite 432, Henry Waterman Hotel, Louisville, Ky., Charles M. Coleman, Pres., c/o Continental Hotel, Pineville, Ky., preparing to file application with Federal Power Commission for utilizing natural gas in proven fields located in Knox and Bell Counties, Ky. and run a pipeline to Alcoa, Tenn.

LOUISIANA

ALEXANDRIA—gas line—City Council recommended that Southern Gas Line, Inc., be given priorities rating on 8-in. pipe for additional fuel line from Ville Platte; approximately 46 miles long.

BATON ROUGE—addition—Aluminum Company of America, Pittsburgh, Pa., reported, construct \$5,500,000 addition to present plant now under construction in North Baton Rouge.

BATON ROUGE—pipe line—Plantation Pipe Line Co., Healey Bldg., Atlanta, Ga., is extending pipe line from Baton Rouge to new point of origin in Texas.

MONROE—power line—Louisiana Power & Light Co., 142 Delaronde St., Sta. A, New Orleans, applied to U. S. Engineer Office, Vicksburg, Miss., for permit to construct

an overhead electric transmission line across Ouachita River at approximately 1.4 miles north of Louisiana State highway bridge at Monroe; 13,800-volt line; 605 foot span.

NEW ORLEANS—acetylene system extension—Gulf Engineering Co., 916 S. Peters St., will probably receive contract for extension to oxygen acetylene system at plant of Louisiana Shipyards on Florida Ave.; J. G. White Engineering Corp., Interstate Bank Bldg., Engrs.

NEW ORLEANS—heating, etc.—Nash Kelvinator Corp., local office Balter Bldg., announced following low bids received for mechanical contracts in connection with proposed new plant to be erected in New Orleans: Emile M. Babst Co., 1050 Camp St. on plumbing; American Heating & Plumbing Co., Inc., 829 Baronne St., heating and ventilating; Grinnell Co., Inc., 1017 Calhoun St., sprinkler system; Long Electric Co., Detroit, Mich., electrical work; Albert Kahn & Associates, New Center Bldg., Detroit, Mich., Architects.

NEW ORLEANS—warehouses—River Terminal Corp. opened bids Aug. 25 for construction of maintenance warehouses; 2 stories and basement; 100 by 440 ft.; Moise H. Goldstein, Archt., American Bank Bldg., New Orleans.

SHREVEPORT—pipe line—United Gas Pipe Line Co., Shreveport, applied to War Dept., U. S. Engineer Office, Foot of Prytania St., New Orleans, for permission to install 12-in. gas pipe line at depth of 8 ft. below mean Gulf level across channel section at corresponding depth along side slopes, under and across Bayou Des Allemands, at point 50 ft. upstream from existing 16-in. pipe line, about 1.6 mi. downstream from De Allemands; plans on file at Office of U. S. Engineer.

Gas Pipe Line—United Gas Pipe Line Co., Shreveport, has received from Federal Power Commission certificate of public convenience and necessity for construction and operation of approximately 38 mi. of 12 1/2-in. natural gas pipe line in nature of loop of its facilities from Lake Long field in Southern Louisiana to point near St. Rose to connect with company's Baton Rouge-New Orleans line; application for authority to construct line was made June 19; according to application, United has been notified to increase its maximum daily delivery to New Orleans Public Service, Inc., from 86,000 MCF to 135,000 MCF, and to Louisiana Power & Light Co. from 28,000 MCF to 48,000 MCF, not later than Dec. 15, 1942, the increases being necessary because of demands of the National War Program as well as by the general development of the New Orleans area; War Production Board's order authorized construction of Lake Long Loop line, conversion of Baton Rouge-New Orleans line to a high pressure pipe line, and assigned preference ratings for necessary material.

Pipe Line—Shell Pipe Line Corp., Shell Bldg., Houston, Tex., plans to build pipe line system from Houston-Texas City area to Baton Rouge, La.; system will be known as Bayou Pipe Line system; WPB has approved application for priority rating; designed to deliver 60,000 bbls. of products from Houston-Texas City and Beaumont-Port Arthur refineries to initial station of Plantation Pipe Line Co. near Baton Rouge; project calls for 8-in. line from Baytown to Port Neches, 10-in. line from Port Neches to Baton Rouge, and feeder lines from several refineries; contract has been awarded to L. C. Little, Dallas, Tex., for the 10-in. line and to O. R. Smith Contracting Co., Odessa, Tex., for the 8-in. line; construction is being supervised by H. H. Anderson, vice president of Shell Pipe Line Corp., and D. H. Lewis, Ch. Engr., of the Shell corporation; approximately \$7,000,000 for project will be provided by Humble Pipe Line Co., Shell Pipe Line Corp., Texas Pipe Line Co., Pan American Pipe Line Co., Pure Transportation Co., and Crown Central Pipe Line & Transportation Corp.

Warehouse—Moise H. Goldstein & Associates, Archts., American Bank Bldg., New Orleans, received bids Aug. 25 for 2-story, 104x14 ft. masonry warehouse, New Orleans Terminal Maintenance Warehouse & Supply Base, in Jefferson Parish, for River Terminals Corp.; project includes: pile

(Continued on page 34)

SUB-CONTRACTORS WANTED

For information, blue prints, specifications, etc., on the following items write or telephone the Philadelphia office of the War Production Board, quoting the symbol number of the item in question. You will then be put in touch with the engineer assigned to that item. Please quote the Manufacturers Record.

Ref. Chase-22-3

A Connecticut manufacturer requires indefinitely continued subcontracting facilities on AVIATION MOTOR COMPONENTS as follows: Breather Connection Bodies, Supercharger Drain Adapters, Diffuser Support Studs, Valve Rocker Shafts, Exhaust Valve Washers and Main Crank Case Studs, all of SAE 6150 Steel. Push Rod Ball Ends of SAE 3115 Steel and Valve Tappet Rollers of AMS 6440 Steel. Material largely Bar Stock. Tolerances—medium and close precision. Quantities: various according to items. Equipment required: Screw Machines or equivalent, Light Milling Machines, Drilling, Thread Rolling, Grinding, Heat Treating, Cadmium Plating. Prints and specifications can be seen at the Philadelphia office.

Ref. Cruse-45-1

A Penna. firm wishes to locate subcontracting facilities for TRACK LINKS, Model 6.B., size approximately 7" x 6" x 9", weight 15# estimated. Materials, to be furnished by bidder, are 1045 SAE Steel Forgings. Number of parts required is 500 to 1100 per day, production to be as soon as possible. Priority rating: A-1-A or AA. Equipment needed is: 4000# Hammer, 1½ Drill Press, and Milling Machine. Drawings and specifications can be seen at the Philadelphia Office.

Ref. Cruse-45-2

A Government Agency requires subcontracting facilities for 2000 DOGS, S. B. G. M³ III B, size 10 x 5 x 2½ and weight 8#. The material, to be furnished by bidder, is Nickel Chrome Molybdenum Steel. Required equipment: 2000 lb. Drop Hammer, Engine Lathe, Milling Machine, and Drill Press. Production is to start as soon as possible. Priority rating is A-1-a or AA. Drawings and specifications are on file at the Philadelphia Office.

Ref. Eser-23-1

An Eastern Penna. concern is seeking subcontracting facilities for the machining of HEAVY GREY IRON CASTINGS. Weights will approximate 10,000 to 12,000 lbs. each. These Castings are for low, high and intermediate Cylinders, Pistons and Beds for Triple Expansion Engines. Tool requirements are Heavy Engine Lathes, Large Planers and Vertical Boring Mills. Prints and specifications can be seen at the Philadelphia Office.

Ref. Keefer-43-1

A Missouri concern requires subcontracting facilities for the manufacture of FUZE ADAPTER, size 1-3.4" O.D., length overall 2.12", external and internal threading, finish "f." Material: Steel—WDX—1314 Cold Drawn. Alternate material: Steel—WDX—1112 Cold Drawn. Tolerances + or - .02". Quantity to be produced—90,000 at the rate

of 20,000 per month. Multi-spindle Automatic Screw Machines needed for this work. Prime contractor states that from previous experience, proper price on this part should be between .30 and .35 cents including material and labor f. o. b. the manufacturer's plant. Blue print on file at the Philadelphia Office.

Ref. Keefer-47-1

A Penna. firm needs subcontracting facilities for the manufacture of BASE and ADAPTER. Size of Base: 4.290" O. D., length—1½", weight—3 lbs. Size of Adapter: 2-15/16" O. D., length—1-11/32", weight—12 oz. Forging facilities, Turret Lathes, and Multi-Spindle Automatic Screw Machines needed for work. Materials required: Drop Forgings, and Cold Rolled Steel—W. D. 1115. Prime contractor can furnish Drop Forgings if necessary. Quantity to be produced: 500 of each per day. Prints, specifications, and samples can be seen at the Philadelphia Office. Various priorities ratings: AA1, AA2, and balance A-1-a.

Ref. O'Hara-26-1

A Penna. firm requires subcontracting facilities for CYLINDER FRAMES. Requirements—Planers 4' x 5' x 20'; also #4 Heavy Millers. Material to be furnished by prime contractor.

Ref. Thompson-48-1

The Government needs a subcontractor for JOHNSON LIGHT MACHINE GUN: 15,000 each of 19 Component Parts required—up to 1¼ pounds each. Materials to be used: Steel, SAE 1020, 1045, 3140, 4150, and 4650, Spring Steel, Shelby Tubing. Materials furnished by Prime Contractor. Equipment needed: Tools, Jigs, Fixtures and Gauges to be quoted separately; Drilling, Milling, Profiling, Heat Treating, Forging, Stamping and Parkerizing Equipment required. Parts required as early as possible. Prints may be seen at the Philadelphia WPB Office.

Ref. Chase-45-1

A New York manufacturer wishes to locate subcontracting facilities for MAGNETO PARTS: Distributor Gear Axles up to approximately 3¼" dia. by 1¼" long, 18 Lobe Breaker Cams up to approximately 1½" dia. by 15/16" long, Breaker Cam Shafts up to ¾" dia. by 6" long. Tolerances close. Quantities varying up to 7000 per month. The following equipment or equivalent is required: ID, OD, Surface and Cam Grinding, Drilling, Milling, Lapping, Hob Shaping and Spinning, Thread Grinding, Profiling, Turret Lathes, Automatic Screw Machines, Heat Treating. Contract by negotiation. Prints and information at Philadelphia Office.

Ref. Jackson-47-1

A Penna. concern needs a subcontractor to supply SURGICAL FORGINGS. Quanti-

ty: 6000, size—10½" long, ¾" wide, ¼" thick, weight ½ lb. Materials to be used: Carbon Steel SAE 1065, to be furnished by subcontractor. Equipment needed: Forge Hammer, Forging Dies, Trimming Dies. Required immediately, A-1-4 priority rating.

Ref. Keefer-47-1

A Penna. firm needs subcontracting facilities for the manufacture of BASE and ADAPTER. Size of Base: 4.290" O. D., length—1½", weight—3 lbs. Size of Adapter: 2-15/16" O. D., length—1-11/32", weight—12 oz. Forging facilities, Turret Lathes, and Multi-Spindle Automatic Screw Machines needed for work. Materials required: Drop Forgings, and Cold Rolled Steel—W. D. 1115. Prime contractor can furnish Drop Forgings if necessary. Quantity to be produced: 500 of each per day. Various priorities ratings: AA1, AA2, and balance A-1-a.

Ref. Thompson-48-1

The Government needs a subcontractor for JOHNSON LIGHT MACHINE GUN: 15,000 each of 19 Component Parts required—up to 1¼ pounds each. Materials to be used: Steel, SAE 1020, 1045, 3140, 4150, and 4650, Spring Steel, Shelby Tubing. Materials furnished by Prime Contractor. Equipment needed: Tools, Jigs, Fixtures and Gauges to be quoted separately; Drilling, Milling, Profiling, Heat Treating, Forging, Stamping and Parkerizing Equipment required. Parts required as early as possible.

Ref. Chase-51-1

A New Jersey manufacturer requires indefinitely continued sub-contracting facilities for machining AVIATION ENGINE STARTER COMPONENTS of approximate dimensions as follows: Bearing Ring, 3¾" Diam. x ¼" Long and Ball Race, 4" D x 1¾" L, both high carbon, high chrome steel tubing; Spine Nut, 2¼" D x 1½" L, nickel chrome steel; Rotor Shaft, 2¾" Disc D x 2¾" Shaft L, chrome vanadium bar; Intermediate Head, 3¾" D x 4½" L; Shaft Screw, 2¼" D x 5¾" L; Threaded Sleeve, 2" D x 4¾" L; Bevel Gear, 27 teeth, 10 pitch, 2.7" PD, splined shank ¾" D x 2-23/32" L. Latter four items of 5% nickel carburizing steel. Sub-contractor to furnish own material. AA-1 Priority. Tolerances—medium and close precision. Quantities varying up to 1000 per month. Equipment or equivalent required: Turret Lathe; Thread Miller and Grinder; Gear Shaper; Drill Press and Multi Spindle Drill; Broach; I.D., O.D. and Surface Grinder; Milling Machine; Lapper; Heat Treating and Magnadux. Prints and specifications at Philadelphia Office.

Ref. Cruse-51-1

A Penna. concern wishes to locate subcontracting facilities to machine and heat treat 6½" O.D. BALL BEARINGS. ½" balls and race stock furnished by Prime Contractor. Tools and fixtures to be built by subcontractor and purchased by prime contractor. Material SAE 1010. Minimum production of 50 bearings per day. Sample and drawing on file at the Philadelphia Office.

FIRE BRICK—

Booklet—"Mono-Fibrik—High Grade Plastic Monolithic Fire Brick," outlines advantages of the use of Mono-Fibrik fire brick methods of installation, application in lining H.R.T. and water-tube boilers, and all types of industrial and metallurgical furnaces. Mexico Refractories Co., Mexico, Mo.

Probable New Bentonitic Clay Horizon in Tennessee

The occurrence of bentonitic clay near Glass in Obion County, Tennessee, gives rise to the belief that probably a new horizon at or near the top of the Eocene (Tertiary) section of West Tennessee has been discovered.

In describing this newly found deposit, George I. Whitlatch of the Tennessee Division of Ecology, says "in the chief exposure, the clay forms the bed of a stream and is exposed up the west bank to about ten feet above stream level. The lowermost 24 to 30 inches of exposed strata is a relatively soft massive light-gray, slightly greenish or tannish, clay that is irregularly jointed and has a hackly, conchoidal fracture very similar to Porters Creek clays of the Midway series. Immediately overlying is a 30 to 36 inch zone of hard almost flintlike dark gray, slightly bluish massive clay. This indurated zone also weathers with a typical conchoidal fracture and apparently is gradational with both underlying and overlying clays. Small nodules of a peculiarly opalescent material, resembling the kaolin mineral halloysite, were noted. The remainder of the maximum thickness of 10 feet is apparently a soft type of clay similar to that below the indurated zone, but slump and deep weathering have obscured details."

First and Merchants National Bank of Richmond Opens New War Branch at Arlington

At the request of the War Department, the First and Merchants Bank of Richmond opened an office in Arlington, Virginia, August 20.

The office, according to H. Hiter Harris, president, is in the new War Department Office Building, also known as the Pentagon Building, now in course of construction. When the structure is completed, it will be the largest office building in the world.

"Our Arlington office," said Mr. Harris, "is being established for the purpose of cashing checks for the Government employees who work in the building. They already number 15,000 and are expected to reach 40,000 or more upon completion of the structure. The office will be the means of saving the War Department many hours of work, now lost by employees attending to their banking needs."

The Arlington office is one of the first of its type to be established by a commercial bank for the convenience of Government workers.

As Virginia's largest bank moves to the Potomac to establish an office in the



Scene at the Virginia Bridge Company's main office building in Roanoke, Va., on September 1, when Mr. L. A. Paddock, president, accepted the Army-Navy "E" pennant from Colonel C. H. Chorpene, representing the Army, and Commander R. F. McCall, representing the Navy. The Virginia Bridge Company, a U. S. Steel subsidiary has been playing an important part in the fabrication and erection of steel structures essential to the war effort. In notifying the company of the award, Under Secretary of War Robert P. Patterson said; "The patriotism which you and your employees have shown by your remarkable production record is helping our country along the road to victory. The Army and Navy are proud of the achievement of the men and women of the Virginia Bridge Company."

world's largest office building, a cycle of history is completed. For on April 24, 1865, less than a month after General Lee met General Grant at Appomattox, capitalists from Alexandria, Virginia, and Washington aided in the establishment of the First National Bank of Richmond, the oldest of the many institutions that have combined to form the present First and Merchants. Now, three-quarters of a century later, the First and Merchants has opened an office within a few miles of Alexandria, and just across the river from Washington, the city in which the First National was organized.

The Pentagon Building dwarfs the pyramid of Cheops and already is being called "one of the modern wonders of the world." Upon completion it will have a floor space of about 4,000,000 square feet as compared with 2,924,036 square feet in New York's RCA Building which now is listed in almanacs as the world's largest office structure.

The Pentagon Building will consist of the two 5-sided "rings" of buildings, one within the other. Each of the five faces of the outer ring will be 921 feet long, making a distance of almost a mile around the structure. Completion is set for January 1, 1943. Ground was broken for the building last September and work has not stopped.

Trans-Florida Pipeline to Start Construction

Laying of the Government-owned, Carabelle-to-Jacksonville trans-Florida pipe line is scheduled to start on or about October 1 and it is expected that construction can be completed by December 15.

At that time, the line will commence delivery of 35,000 barrels of petroleum products daily to Jacksonville, from where it will be distributed by barge to consuming centers along the route of the Atlantic intracoastal waterway as far north as Virginia.

The line is to be constructed entirely out of second-hand equipment, which is being dug up and dismantled in Texas for shipment to Florida.

Some 50 miles of 8-inch pipe has been dug up already and is being prepared for shipment Eastward. Thereafter, 30 miles of pipe will be shipped each week until the required quantity—about 185 miles—has been moved to location.

Three storage tanks, with a total capacity of 172,500 barrels, have been dismantled and are enroute now to Florida. About half of the required pumping facilities also have been dismantled and will be shipped shortly.

In preparation for the actual start of work, about 170 miles of right-of-way has been surveyed.

Giant Blast Furnace Dedicated

One of the world's largest blast furnaces was dedicated late last month at Ashland, Ky., when Lt. Gen. William S. Knudsen, director of War Department production, and George M. Verity, founder of the American Rolling Mill Co., unveiled a monument commemorating the event.

Built in less than 300 days from the time ground was broken, the new 1,200-ton unit is known as the Bellefonte furnace and was so named from an old stone furnace erected back in 1826. The installation is 235 feet high and is expected to substantially increase the country's production.

General Knudsen, who with Mr. Verity, spoke before more than 3,000 spectators gathered at the Armco plant, exhorted the workers present to keep the furnace going and "we'll try to keep the rest of the show going."

R. C. Allen, deputy chief of the iron and steel branch of the War Production Board, during a talk before the banquet held after the ceremony, said that steel production should reach the rate of 98,

250,000 net tons annually by the middle of next year.

The new unit was blown in August 20, four days before the celebration. The furnace towers as high as a nine-teen-story building.

War Statistical Progress Report

United States Authorized Program and Purchases June 1940 to Latest Reporting Date

	As of June 30	As of Aug. 15
	(In millions of dollars)	
Authorized war program	\$170,288	\$214,759
Contracts and other commitments	129,998	*
Disbursements	34,765	42,067
Authorized war program broken down (In millions of dollars):		
		% of Total Program
Munitions	\$150,165	69.9

*Not available.

War construction ..	34,527	16.1
Miscellaneous	30,067	14.0
Total	\$214,759	100.0

Federal Debt Under Statutory Limitation

Outstanding, as of July 31, 1942

Foreign Governmental Transactions in the United States

Total obligations, Nov. 1939-June 30, 1942.... \$4,096,000,000
Payments on orders, Nov. 1939-June 30, 1942.... \$3,052,000,000

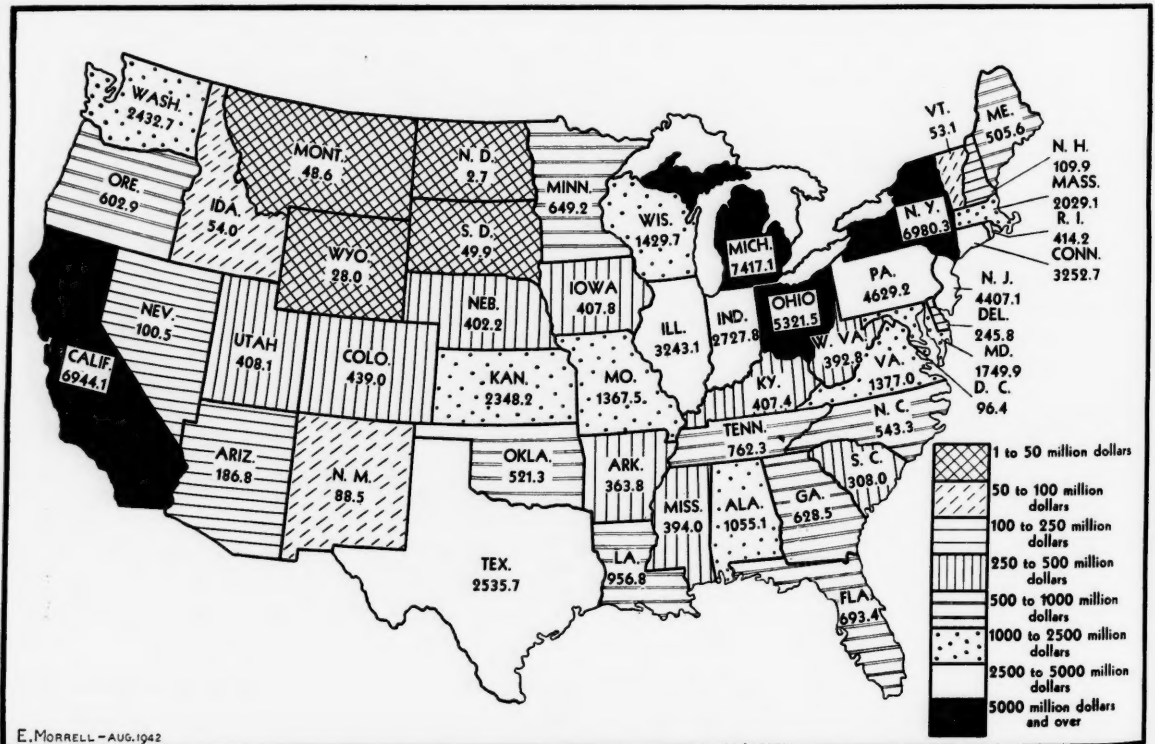
Production Data Plant Expansion

Government commitments for war plant expansion, June 1940-June 30, 1942; 1,887 projects

Private commitments for war plant expansion, June 1940-June 30, 1942; 8,686 projects .. \$2,996,000,000

Due to circumstances beyond our control, the compilation of statistics concerning War Contracts and Allocations to Southern States for the period June, 1940, through July, 1942, which would normally appear here, has been unavoidably delayed. Readers who particularly wish to have this information will be provided with a copy upon written application as soon as it is available. This feature of the Manufacturers Record will be continued. For the benefit of those who do not have a copy of the August Manufacturers Record we are reprinting below last month's statistical map.—Editor.

War contracts and allocations of all Federal agencies through June was \$80,338,688,000. Of this, \$14,153,179,000 has gone to southern states. Totals for each state in millions of dollars are shown in the map below.



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AMCRECO *Creosoted* PILES and TIMBER

Build
**LONG LIFE,
ECONOMY and
RELIABILITY**
into Every Construction Job



AMERICAN CREOSOTING COMPANY

COLONIAL
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GEORGIA
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New Priorities Put in Effect During August

(Continued from page 34)

from A-9 or higher to A-1-c or higher necessary to obtain certain types of equipment covered by original order.

General Inventory Order—M-161 Amend. #4 adds caustic soda and soda ash to Sch. A and removes them from inventory restrictions of Priority Reg. #1. M-161 Amend. #5 removes inventory restrictions on borax and boric acid to permit industrial stockpiling of these materials. M-161 Amend. #6 adds silicate of soda to items exempted from inventory restrictions of Priority Reg. #1.

Goatskins, Kidskins and Cabrettas—M-114 (as amended 8-7-42) relieves tanners of excess inventory of six-foot skins and makes more leather available for civilian use.

Hand Tools Simplification—L-157 Amend. #1 to Appendix A to Sch. #1 corrects errors in tabular material attached to order.

Heat Exchangers—L-172 establishes complete allocation control. Use forms PD-615, 615A and 615B.

Heat Treating Equipment—M-211 authorizes WPB to establish production and delivery schedules when necessary.

Imports of Strategic Materials—M-63-b Ext. #1 extends order to Sept. 30 whereby wools finer than grade 44s continue to be exempted from imports order. M-63 (as amended 6-2-42) Amend. #3 makes changes in listings of articles on list I, II and III affecting oils, wool, fabrics and kaolin. M-63 (as amended 6-2-42) Amend. #4 defines responsibilities of banks in connection with imports under original order. M-63-b Amend. #1 removes shearlings from exemption and, effective immediately, no one may import shearlings without authorization.

Industrial and Commercial Refrigeration—L-126 Amend. #1 to Sch. #1 corrects errors in schedule of specifications for self-contained drinking water coolers.

Industrial Machinery—L-83 Amend. #3 permits application of Production Requirements Plan and Government Requirements Plan to certain types of industrial machinery.

Industrial Power Trucks—L-112-a lists approved standard models which manufacturers are permitted to produce.

Jute and Jute Products—M-70 (as amended 7-31-42) specifies Defense Supplies Corp. as sole purchasing agent for all raw imports. Use forms PD-222, A, B, C and 319.

Kitchen, Household and Miscellaneous Articles—L-30 Amends. #5 and #6 further restrict use of iron and steel in manufacturing. L-30 Amend. #7 exempts manufacture of pails and tubs for use in shipping and packing from terms of original order.

Laboratory Equipment—P-43 Amend. #1 permits specifically approved small laboratories to use A-1-a rating to obtain reagent chemicals. L-144 Amend. #1 exempts armed forces and certain

Government agencies having to do with research from terms of original order. L-144 Amend. #2 exempts chemicals defined as "chemicals prepared and packed for reagent use in laboratories" from provisions of L-144.

Laundry, Dry Cleaning and Tailors' Machinery and Equipment—L-91 (as amended 6-22-42) Amend. #1 brings used equipment valued in excess of \$100 under restrictions of original order. Use form PD-418.

Lawn Mowers—L-67 Amend. #2 permits manufacture of gang mowers for Army, Navy, Maritime Commission and Lend-Lease on restricted basis.

Lead—M-38-j covering monthly lead pool is revoked as current production exceeds demand.

Leather, Sole—M-80 (as amended 8-5-42) makes more sole leather available for civilian use. M-80-a fixes August quota of manufacturers' mends to be set aside by tanners at 15%. M-80-b sets September quota of leather for civilian shoe repair at 15% of production.

Loose Leaf Metal Parts and Units—L-188 limits amount of iron and steel to 30% of 1941 consumption in use for blank books, loose leaf books, binders and covers.

Lumber, Softwood—M-208 places rigid control on distribution and use of all types and grades. Order replaces temporary "freeze order" L-121.

Machine Tools—E-1-b Int. #4 advises producers that an urgency standing should not be used in connection with a Preference Rating Certificate PD-1A. E-1-b Amend. #1 provides for reallocation of tools after certain quotas have been filled.

Men's and Boys' Apparel—L-130 prohibits manufacture of woolen lounging robes.

Men's Work Clothing—L-181 reduces pockets, buttons, buckles and yardage in manufacture.

Mercury—M-78 (as amended 8-5-42) makes several additions to both permitted and prohibited uses of mercury. Reduces amount for use in production of cosmetics from 80% to 30% of amount used during base period.

Metal Hair Pins—L-104 Amend. #1 permits manufacture to be continued until Sept. 15 at same rate as has been in effect since April 25.

Military Insignia (Officers)—L-131-a permits buying and selling by persons holding certificates from the Adjutant General's Office of the War Dept.

Mines—P-56 (as amended 3-2-42) Amend. #3 states that ratings as high as are necessary will be granted in emergencies to get parts or materials for certain types of mines in case of breakdowns.

Molasses—M-54 (as amended 3-27-42) Amend. #3 removes all restrictions on use in U. S. possessions outside continental U. S.

Molybdenum—M-110 Amend. #1 permits melting only after approval of melting schedules as provided in M-21-a or by specific authorization.

Motor Trucks, Trailers and Passenger Carriers—L-1-H permits 15 pro-

ducers to manufacture 4,000 heavy trucks to replace vehicles withdrawn from civilian stockpile since June 1 by Army, Navy and Lend-Lease. Use form PD-571.

Office Machinery—L-54-a (as amended 8-4-42) orders manufacture of typewriters to cease Oct. 31 except for Woodstock Co., who will manufacture for government agencies. L-54-c Int. #1 makes it clear that deliveries to "cost-plus-fixed-fee" contractors must be authorized in one or two days depending on use to which machinery will be put: use forms PD-423 and PD-1-a.

Paper—L-120 Amend. #1 to Sch. III adds a weight classification to the specifications for chemical wood pulp mimeograph paper. L-120 Amend. #1 to Sch. #IV adds technical limitation to chemical wood pulp tablet paper order. L-120 Amend. #1 to Sch. #V adds technical limitation to white wove envelope paper order.

Patterns for Garments—L-153 brings paper patterns used in making dresses and other apparel under measurement restrictions already applying to ready made garments.

Petroleum Material Conservation—M-68-4 grants an exception to well-spacing regulations enabling operators in the Smackover oil field in southern Arkansas to plug back wells to shallower producing horizons. M-68-5 approves an interim relaxation of oil-well spacing regulations in Illinois, southwestern Indiana and northwestern Kentucky. M-68-6 stops further drilling of gas wells in Hugoton Gas Field in Kansas and Oklahoma except where specifically authorized.

Petroleum Production, Marketing, Refining and Transportation—L-86 Amend. #1 permits producers to use preference rating assigned under P-98 in securing material for maintenance and repair of liquefied gas equipment. P-98 (extended and amended) is a re-issuance of original order with amendments and extensions.

Phthalate Plasticizers—M-203 establishes complete allocation control. Use forms PD-606 and 607.

Pilehard—M-206 prohibits contracts or agreements between fishing vessel operators and cannery which limit amount that may be caught.

Plastics (Thermoplastics)—M-154 Amend. #2 changes order to limitation order and extends date for scheduling until Oct. 1. M-154-a restricts use of polyvinyl butyral, rubber substitute, to war orders, except by authorization. M-154-b provides that methyl methacrylate sheet scrap cannot be disposed of except to reprocess into sheeting.

Plumbing and Heating Simplification—L-42 Amend. #3 to Sch. #II permits manufacture of certain types of pipe fittings.

Power, Steam and Water Auxiliary Equipment—L-154 Sch. #II prohibits use of copper, copper base alloys, nickel or tin in tube sheets.

Printing and Publishing—M-99 requires critical materials now lying idle in obsolete printing plates to be channeled into war use; owners of obsolete plates may not acquire any new metal. Printers and publishers who obtain new metal must certify on their purchase

(Continued on page 52)

INDUSTRIAL SURVEYS

in the Seaboard Southeast

FOR MANY YEARS we have helped industry by furnishing reliable surveys on industrial locations in the Seaboard Southeast.

MORE RECENTLY we have likewise assisted numerous Government agencies by supplying authentic reports on various parts of our territory.

OUR PRIME OBJECTIVE:—To contribute to our Country's war effort in every possible way until victory is won.

INDUSTRIAL DEPARTMENT **SEABOARD** AIR LINE RAILWAY

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A fuel whose value has been proven by years of use in a most diversified line of industrial applications.

Natural gas has created the possibility of effortless comfort by the facility, and economy with which it fits into the home.

SOUTHERN NATURAL GAS COMPANY

Watts Building

Birmingham, Ala.

New Methods and Equipment

Industrial Skin Cream

Under the trade name of Mitts, the Mitts Manufacturing Co., Brooklyn, N. Y., has introduced a water soluble industrial skin cream to be applied to the hands or other exposed parts before starting work, which not only makes cleaning of the hands and finger nails easy, it is claimed, but protects the skin from many irritating materials that cause industrial skin trouble. The product is said to vanish as soon as applied, leaving an invisible glove that protects against grease, paint, dust, printer's ink, furniture and metal polish, etc. It is non-sticky and non-staining and washes off in soap and water, carrying dirt and grime with it.

P&H Zip-Lift Hoist Now Made in One-Ton Capacity

To meet the need of many war material plants for a Zip-Lift hoist of 1-ton capacity, Harnischfeger Corporation, Milwaukee, Wis., recently included the 2,000-pound model in regular production. Although this model has been in the P&H line since the Zip-Lift was introduced, it has only been available on special order but now takes its place with the 250, 500 and 1,000-pound capacity models.



P&H Zip-Lift Hoist in One-Ton Capacity

Equipped with the same features as the smaller Zip-Lift models, it has full magnetic push-button control, pre-formed non-spinning hoist cables, 3-way interchangeable mountings, safety type limit switch, double brakes, and fully-enclosed construction which is dust-proof and weather-proof. It is designed for quick interchangeable mounting, either trolley, hook, rigid or bolt, but may be parallel or cross-mounted.

Tank-Dip Process of Preserving Rubber

Designated the Prolatax Rubber Saving System, a new and revolutionary tank-dip process of preserving rubber has been announced by Transmotive Laboratories, automotive chemical manufacturers, 2550 S. Michigan Avenue, Chicago. The system consists of a vegetable base preservative and specially constructed dipping tank for application. It is claimed to preserve the elasticity and resilience of rubber, to fill pores, cracks, minor cuts and abrasions, and to seal the entire out-



Showing Prolatax Tank-Dip Process for Rubber Saving

side surface of the rubber against oil, grease, gas and air as well as rubber-destroying rays of the sun, and to restore the "new-rubber" appearance. It will, in short, effectively halt "rubber-rot" or oxydation, according to the manufacturer, who stresses the point that it is not a paint and is not applied by brushing, but is a pentrant of extreme-low viscosity which permits speedy absorption by the rubber. Made of a soy bean base compounded with a number of materials of acknowledged rubber preserving value, the system is applicable to the preservation of all kinds of rubber articles, but its obviously greatest usefulness is in tire preservation. A specially designed dipping tank permits the application to tires while on the car.

"Celastic" Speeds Military Production in Foundries

A plastic which has been used for years to give strength and resiliency to box toes of shoes now speeds military production in foundries by affording quick, easy, economical repairs and alterations for patterns of metal castings. This plastic, which is a colloid treated fabric, trade-marked "Celastic," is double-napped cotton flannel, similar to a cotton blanket, impregnated with cellulose nitrate and a fire retardant, making it slow-burning. When wet down with a solvent, it may be formed into any shape, and will retain that shape on drying. The product is made by The Celastic Corporation, Arlington, N. J., which is owned jointly by the United Shoe Machinery Company and E. I. du Pont de Nemours & Company.

WAR DISLOCATIONS and your Business

Today many corporation executives, due to changed economic conditions over the past decade and dislocations caused by our all out war effort, are faced with unusual problems which have disrupted a successful record of peace time earnings.

For many years we have specialized as consultants to industrial management and have an enviable record of solving widely diversified problems concerned with dislocations in business.

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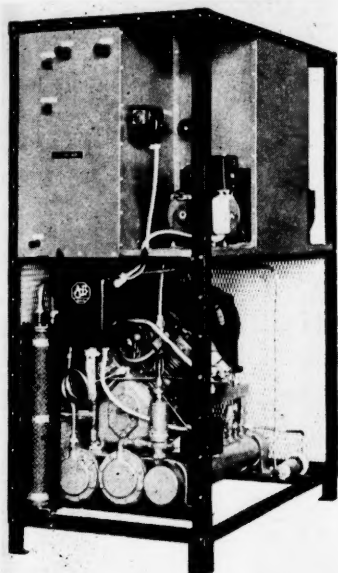
Fulton Bag & Cotton Mills

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Atlanta St. Louis Dallas Minneapolis
New York New Orleans Kansas City, Kan.

Faster and Cleaner Welding With F-M Spot Welding Tip Cooler

Fairbanks, Morse & Co., Chicago, announces a sturdy, compact cabinet unit known as the Fairbanks-Morse Spot Welding Tip Cooler. It is a self-contained cooling apparatus which circulates a special non-corrosive, non-precipitating solution through welding tips of a spot welder, and has made it possible, it is claimed, for aircraft plants to increase the number



of aluminum spot welds between tip cleanings as much as 1,400 per cent. The unit operates fundamentally as a refrigerating machine, being equipped with two pumps driven by motors having cycling overload relays. The unit is 55 inches high, occupies only 25 by 44 inches of floor space, and although it is designed to cool tips of one spot welding machine only, a battery of machines may be cooled by using a central cooling system consisting of larger compressor, brine cooler, and pump.

Industrial News

Worthington Makes Laidlaw Manager of Cleveland Office

The appointment of R. J. Laidlaw as manager of its Cleveland district office has been announced by Worthington Pump and Machinery Corporation of Harrison, N. J. Mr. Laidlaw will succeed A. J. Klug who will now devote his entire time to special work with certain industries in the Cleveland district.

Cochrane Corporation Appointment

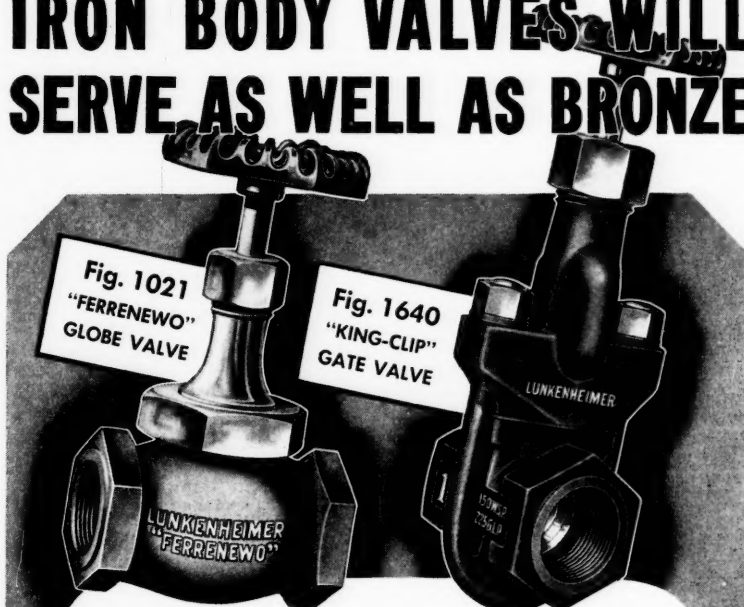
Cochrane Corporation, Philadelphia, Pa., announces the appointment of Energy Control Company, 3107 N. Broad Street, Philadelphia, as flow meter representative for Eastern Pennsylvania, Southern New Jersey, Delaware and Maryland. This company will also handle Hays combustion control and instruments and the Heacon damper.

Norton Company Appointments

R. H. Langdon has been appointed Field Engineer in the Pittsburgh, Pennsylvania, district by Norton Company, Worcester, Mass., and E. P. Gregory has been appointed Field Engineer in the Chicago district. Both Mr. Langdon and Mr. Gregory have had experience in the Research Laboratories and Sales Engineering Department of the company at Worcester.

(Continued on page 46)

FOR MANY SERVICES THESE IRON BODY VALVES WILL SERVE AS WELL AS BRONZE



and with proper priorities, you are likely to get better deliveries

The availability of bronze valves is becoming an increasingly critical problem, because of the scarcity of copper, tin, and other vital materials necessary in their manufacture. We recommend consideration of these iron body patterns as alternates.

THE "KING-CLIP"—a sturdy iron body gate valve with internal working parts of bronze, for hard and continuous usage. It has wide application in industry and in many cases will serve as well as a bronze valve.

THE "FERRENEWO"—an iron body bronze mounted globe valve for numerous services. All parts are renewable and the seat and disc are easy to regrind. An excellent valve with low upkeep cost.

Since virtually all materials used in the manufacture of valves are on the list of critical materials, valve users are urged to furnish the highest possible preference ratings and proper "end use" Allocation Classification Symbols on their orders. This will be of mutual helpfulness.

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LUNKENHEIMER VALVES

Industrial News

(Continued from page 45)

Frazier Appointed District Sales Manager

W. I. Galliher, Director of Sales, Columbia Chemical Division, Pittsburgh Plate Glass Co., Pittsburgh, Pa., announces the appointment of K. C. Frazier as District Sales Manager of the New York Metropolitan area. For the last ten years, Mr. Frazier has been Southwestern Manager of the Southern Alkali Corporation, an affiliate of Pittsburgh Plate Glass Company.

H. K. Porter Company Receives Army-Navy E Award

The H. K. Porter Company, Inc., Pittsburgh, Pa., manufacturer of locomotives, process equipment and special ordnance material for both the Army and Navy, has been notified by the Army and Navy Departments that it has been selected to receive the joint Army-Navy "E" Award in recognition of high achievement in the production of war equipment. T. M. Evans is president of the company.

Square D Company Opens Branches

To better serve war material producers in strategic areas, the Square D Company, Detroit, Mich., manufacturer of electrical equipment, has transferred W. W. Hendrickson from the Charlotte, North Carolina office to Greensboro, N. C., to open a new office at 303 Kensington Road. C. T. Nash, formerly with the company's New York office, has been placed in charge of a new office at 146 Chestnut Street, Springfield, Mass.

Columbia Chemical Division of Pittsburgh Plate Glass Company Moved to Pittsburgh

The executive sales office of the Columbia Chemical Division of Pittsburgh Plate Glass Company has been moved from New York to Pittsburgh, according to Vice President E. T. Asplundh, who explains that the move is a continuation of the Company's program of

coordinating its various divisions in the general office at Pittsburgh. W. I. Galliher, director of sales of the chemical division, will be in charge of sales from the new Pittsburgh headquarters.

Rippey Appointed District Engineer of Portland Cement Association

Glenn Rippey, for the past ten years field engineer for the Portland Cement Association in Tulsa and northeastern Oklahoma, has been appointed District Engineer and will direct the Association's activities in Oklahoma from headquarters in Oklahoma City. A registered professional engineer, Mr. Rippey first joined the staff of the Association in 1925. Principal offices of the Portland Cement Association are at 33 W. Grand Avenue, Chicago, Ill.

Tubular Alloy Steel Corporation

Announcement is made by United States Steel Corporation Subsidiaries, Chicago, Ill., that the name of its new subsidiary, Tubular Products, Inc., has been changed to Tubular Alloy Steel Corporation. Early this year Tubular Products, Inc., acquired the plant of National Tube Company in the Chicago district at Gary, Ind., for the production of seamless tubing of alloy and stainless steel essential to the war effort. Benjamin F. Harris, president of National Tube Company, is president of Tubular Alloy Steel Corporation. E. N. Sanders is vice president with headquarters at Gary.

For Raising Employee Morale and Increasing Industrial Output

Designed to raise employee morale and increase industrial output, a sign created by the United States Government is being distributed to war plants by the War Production Institute, 1901 East 60th Street, Cleveland, Ohio. The sign is available to plants devoting 50 per cent or more of their production to the war effort. Printed on high grade banner sign cloth in brilliant colors of red, white and blue, it is 42 by 72 inches.

Toler Appointed Forester for Southern Pine Association

Brooks Toler, State Forester for Alabama since 1939, has resigned that position to ac-

cept the position of forester for the Southern Pine Association, New Orleans according to H. C. Berckes, Secretary-Manager of the Association. Mr. Toler, who takes over his new duties October 1, is a native Louisianian and a graduate of the School of Forestry, Louisiana State University. Following his graduation, he became affiliated with the American Forestry Association and later held the position of district forester in Mississippi. He next served as extension forester in Mississippi until 1939, when he was called to Alabama by Governor Frank Dixon. In his new position, he will have his headquarters at the home office of the Association in New Orleans, but will spend much of his time traveling among the mills and visiting with State and Federal forestry groups.

Masonite Corporation in Civilian and War Industries

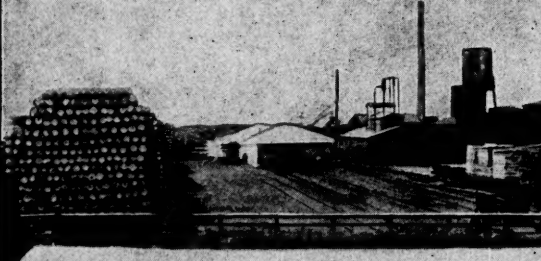
Citing the role of the Masonite Corporation, Chicago, in civilian and war industries, R. G. Wallace, vice president and general manager, states that the corporation is operating at full capacity because of the demand for alternatives for steel, aluminum, rubber, cork, asbestos and other materials. At the same time the company is making every effort to supply essential civilian needs.

Products of the Masonite Corporation are made of Southern pine and hardwoods, thus obviating dependence upon imports. Production at the Laurel, Mississippi, plant has been increased by more than 30 per cent, with operations on a 24-hour basis.


Presdwood, the basic Masonite hardboard product, is made by exploding wood chips under heavy steam pressure in an industrial gun. The fibre-mass that results is pressed into grainless hardboards that are smooth, dense, and highly moisture-resistant. These boards are being used extensively by the Government for a number of purposes, while in civilian production they are replacing tons of steel in the manufacture of war-style refrigerators, filing cabinets, office equipment, and many other new articles.

Ship Calculations, Construction, Operation— handbook by Chas. H. Hughes, 3rd edition; chapters on merchant vessels, warships, hull construction, machinery, loading and stowage, marine insurance. McGraw-Hill Book Co., 330 W. 42nd Street, New York.

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Decay and Termite Proof—Can Be Painted
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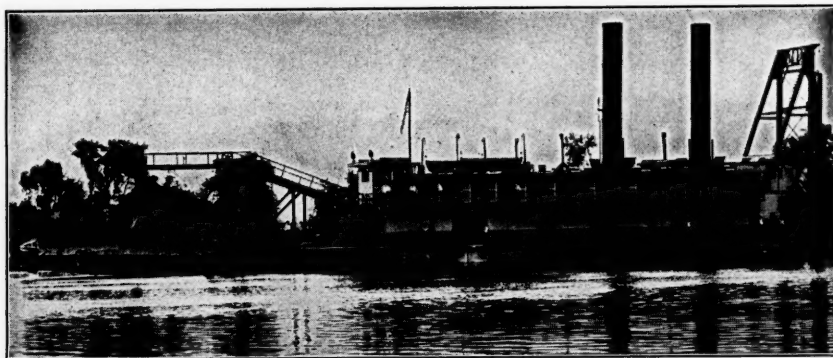
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Trade Literature

LAMINATED PLASTICS—

Hand Book on Laminated Plastics—56 pages, illustrated, devoted to vulcanized fibre and phenol fibre, covering laminated plastics for electrical insulation, radio, electronics, aircraft, silent gears, and for railroad automotive industries; presents tables and other data to guide production engineers in the selection, fabrication and application of material best suited for particular purposes.

Taylor Fibre Company, Norristown, Pa.

STANDARD STEELS ANALYSIS CHART—

Chart—giving chemical composition limits of AISI, SAE and NE (National Emergency) Standard Steels, with nearest aeronautical material specifications; chart, approximately 14 inches by 22 inches, is printed in four colors for quick identification.

Advertising Department, American Steel & Wire Company, 408 Rockefeller Building, Cleveland, Ohio.

PORCELAIN ENAMEL FOR WAR TIME USES—

Booklet—"Porcelain Enamel—A Non-Critical Finish for War Time Uses," interprets porcelain enamel as a finish for various war products and industrial applications, with a chart that shows where this "lifetime" finish can be used to replace such critical materials as stainless steel, copper, chrome, zinc, etc.; publication is designed to help those plants that have been affected by the O.P.M.'s stop orders on refrigerators, washing machines and similar products, to find new war time outlets for their products.

The American Rolling Mill Co., Middletown, Ohio.

TERPENE SOLVENTS—

Booklet—discussing properties and applications of a series of terpene solvents and stressing the point that while turpentine, which is composed of terpene hydrocarbons, is used as a solvent and thinner for protective coatings, it is but one of various terpene solvents available today; thinners and solvents detailed in the booklet have been grouped under five classifications in

accordance with their major constituents, as Bicyclic Terpene Hydrocarbons, Monocyclic Terpene Hydrocarbons, Terpene Alcohols, Terpene Ethers, and Terpene Ketones; technical graphs and other data are included in the publication.

Hercules Powder Company, Wilmington, Del.

GENERAL ELECTRIC EQUIPMENT IN WAR WORK—

House Publication—Special war issue of Monogram for July and August, 1942, presenting highlights of "how General Electric is helping to bring the cause of the United Nations to a swift and victorious conclusion."

General Electric Company, Schenectady, N. Y.

DRAVO DIRECT-FIRED HEATERS—

Bulletin 506—"Dravo Direct-Fired Heaters—Why They Have Earned Highest Priority," having as its subject matter the saving of critical materials, transportation, and time; tabulations are presented covering comparative savings in metals, by weight and monetary cost, while, based on approximately the same B.T.U. output per hour, tables also show less floor space requirements for Dravo Heater Systems; speed of installation with fewer man-hours, and least maintenance requirements, are demonstrated.

Dravo Corporation, Heater Department, Dravo Building, Pittsburgh, Pa.

PROTECTING SHIPMENTS IN TRANSIT—

House Organ—Acme Process News, issue No. 8, showing how a wide variety of war shipments are protected in transit, including details of the strapping of such items as lend-lease food supplies, cranes, candy, bricks, furnaces, cargo trailers, textiles, medical supplies and other products.

Acme Steel Company, 2840 Archer Ave., Chicago, Ill.

FLOW METERS—

Catalog—covering the complete Cochrane flow meter line, including electric, mechanical, linometer (area), ring balance, liquid level and weir meters, in addition to the new 2 pen electric flow recorder with ratio indicating pointer, an improved low pressure (1-in. to 10-in. water differential) electric type meter, and the ultra high pressure (6000 psi) ring balance meter; also presents a discussion of flow metering benefits and complete listings of specifications and ranges.

Cochrane Corporation, 17th and Allegheny Ave., Philadelphia, Pa.

SAFEGUARDS AGAINST FIRE—

Official Publication—"Safeguarding America Against Fire," Summer Edition, 1942, with articles on "Fire Attacks War Production," "Fire Helps the Axis," "Three Booklets Aid Safeguarding of War Industries," and other timely topics.

The National Board of Fire Underwriters, 85 John Street, New York City.

ARMSTRONG MATERIALS IN INDUSTRY—

Booklet—"Armstrong's Gaskets, Packings and Seals," dealing with Armstrong's specialized materials in industry, including cork compositions, cork-and-synthetics, synthetics, cork-and-rubber, fibrated leather, etc., in sheets, rolls, cut parts, molded and extruded shapes.

Armstrong Cork Company, Lancaster, Pa.

MAINTENANCE TRAINING—

Handbook—"Plain Facts on Wartime Care of Rubber V-Belts," which aims to make complete sense of the entire V-belt maintenance story, beginning with the anatomy of a V-belt and principle of the V-belt drive, and ending with post-mortems on actual damaged V-belts; facts revealed show how the anatomy of a V-belt affects its maintenance, how to obtain proper V-belt tension, what to do about worn sheaves, what determines the life-expectancy of V-belts, etc.

Allis-Chalmers, Milwaukee, Wis.

STAYBELITE RESIN—

Booklet—devoted to Staybelite Resin, the hydrogenated rosin produced by Hercules Powder Company from Southern pine; physical and chemical properties are set forth in the analysis of a typical sample, and major properties are discussed generally while certain solvents and plasticizers for Staybelite Resin are cited; applications of the product are its use in adhesives, rubber compounding, resin manufacture, rubber reclaiming, the electrical industry, paper size, paper converting, greases and lubricants, ceramics, soaps, and metallic resins.

Hercules Powder Company, Naval Stores Department, Wilmington, Del.

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... That's why you'll find so many Plymouth Locomotives carrying the load from excavation to processing. Plymouth gives you **SPEED** to keep schedules—**POWER** to haul more tons per load—and **RUGGED CONSTRUCTION** that stands up under constant operation.

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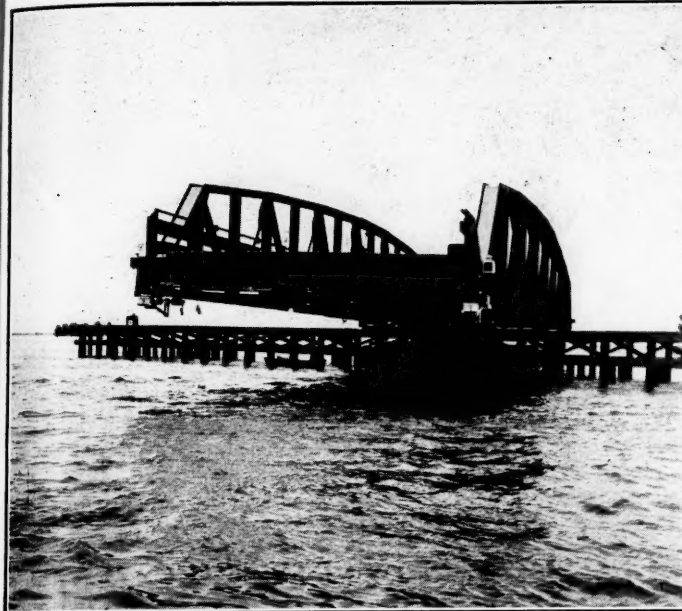
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SAMUEL J. SHIMER & SONS
MILTON, PENNSYLVANIA

Are We Mice or Men?

(Continued from page 29)

Now, instead of permitting these workers to stop or slow down production, thereby endangering the lives of our boys fighting on the many fronts, if our Government was really strong it would force these men to work or else put them in the Army to fight. Certainly if a Democracy can draft men to fight and perhaps die for their country it most certainly can force men to work for their country. *This is a Real Test of Democracy.*

The fact that they happen to be doing war work does not entitle them to be treated as a special favored group. In my humble opinion they should deem it a privilege to be permitted to earn good wages, enjoy good food, and sleep in peace and comfort when so many of our boys are facing the common enemy and enduring privations too numerous to mention.

Loafing on the job, demanding higher wages and striking during these perilous days can only be compared with sabotage in its seriousness. This is especially true during a war of this type where split-second thinking means the difference between life or death for our soldiers, sailors and marines.

These workers must be made to realize that every time they succeed in getting increased wages, do inferior or careless work, or loaf on the job they not only jeopardize our chances of victory but also add to the already stupendous cost of the war.

They also increase the cost of living for their fellow citizens who do not work in defense plants but who have contributed their sons, and are willing to contribute anything necessary to the prosecution of the war. This is true, although in the great majority of cases the wages and salaries of citizens not working in plants classified as "defense" have been increased very little if at all.

We are at war, and although a great many of our people were opposed to involvement and perhaps were sincere in their belief, that question has long since passed the debatable stage. It now behooves us, one and all, as good Americans, irrespective of political faith, race or creed to stand as a unit firmly behind our boys at the front until victory is ours, and then with our faces set toward the dawn of a new era, I trust that we will then calmly, and without malice, settle our differences and put our house in order.

Research—Industry—and the South

(Continued from page 24)

farming and the crops raised, and that the way to relieve unemployment and increase wages is by the development of new industries.

Scientific research must be increased and its results applied to factory and farm. Forests cover fifty-five per cent of the area of the South. In isolated cases they are being developed according to the best known methods but for the most part they are being sadly neglected or wantonly destroyed. If present methods are followed, in time these forests will vanish. By proper methods an immense amount of timber can be cut each year without diminishing the supply for the next year or the year

after. The South can be made to furnish the timber for the nation and have even more left a hundred years hence than it has now.

There are many who are strongly of the opinion that the concentration of the effort of those engaged in industry at this time precludes activity in scientific research or in such organizations as the Southern Association of Science and Industry. On the contrary, war has stimulated research, with the chief purpose of course of improving the instruments of destruction. Past experience shows, however, that out of the discoveries made in times of war, improved methods and products are developed for the cultivation of the arts of peace. Nor is that all. It is characteristic of American business men that even today, while the major effort of industrial research is toward war, plans are being made for the peace-time years to follow. After-the-war planning will become the immediate problem of at least a portion of the nation's research facilities, with a view to producing new or greater improved products to attract sales when peace is consummated.

A great deal of study in research is being given now to the problem of post-war marketing as well as developing new ideas and products and reducing production costs. In the midst of destruction, the creative instinct of man persists in exerting its sustaining efforts in the hope and confidence that a free and better world will emerge. Can the South remain indifferent to this situation? In the world revolution which we are experiencing and which will be intensified after the war, the spirit of human justice, which must prevail, can only be realized by satisfying human needs more generally. This can be done by intensified scientific activity. Here, indeed, is our frontier, again demanding the courage of the pioneer.

Southern business men have a clear duty to tangibly sustain these southern scientists in their efforts and in their researches and thus inevitably to be sustained by them.

In the Southern Association of Science and Industry, scientists and industrialists come together for the mutual benefit of both and for the greater benefit of others who live in the fair land we call the South. It will require hard work and our best thinking and planning, but it is, and will be, well worth it.

Commercial Dehydration of Food

(Continued from page 31)

food field is the egg-drying industry. Eggs consist of water to the extent of 75 per cent. Purchases for Lend-Lease totaled 157 million pounds of dried eggs from April 15, 1941, to May 1, 1942, and purchases to end of 1942 will probably total 200 million pounds. There are approximately 80 drying plants now operating throughout the United States with an annual capacity of 285 million pounds, though the 18 plants in operation in 1940 had a normal operating capacity of only 10 million pounds.

Originally the dried eggs were packaged in 300-pound drums but small moisture- and vapor-proof packages have been found better. Such a 5-ounce package represents a dozen shell eggs. A case of 30 dozen shell eggs weighs about 58 pounds and occupies 2 cubic feet of space while the same eggs when

dehydrated weigh only 11 pounds and occupy less than half a cubic foot.

Three general methods of drying eggs are used—the spray, tray, and belt. In the first, the eggs are sprayed under pressure into the upper part of a high-ceiling chamber heated to a temperature of 160° to 170° F. The second method involves drying in metal trays in specially constructed cabinets through which hot air is forced. By the third method a film of liquid egg travels on an endless belt which traverses a warm chamber through which filtered air heated to about 140° F., circulates. Before using any of the methods the eggs are broken, strained, and emulsified.

Milk

Originally, evaporated or condensed milk was purchased heavily for Lend-Lease shipments. But one ship will carry as much food value in the form of powdered milk as four will in the form of evaporated.

At first dry skim milk was purchased for shipment because whole-milk powder did not keep well. But basic research on milk fats has shown how a whole-milk powder that keeps well may be produced.

More than 209 million pounds of dry skim milk were bought March 1941 through June 1942, but three-fourths of it was roller-processed. Since March 1941 only about 5 million pounds of whole-milk powder have been purchased, and such purchases were irregular until recently. The 1942 production goal of dry skim milk for human consumption is 569 million pounds. In April the actual rate of production of the latter was 575 million pounds, on an annual basis. Dried whole milk will be shipped increasingly, however, since the method of making it has improved.

The problem here is that of protecting milk fat or butterfat from rancidity. Careful research has shown that if fresh milk is promptly processed the keeping quality of the resultant powder is excellent. It is also very necessary to protect the product from oxidizing agents. This is likewise true of dehydrated butter.

Butter

Dehydrated butter (or pure butter oil) is made by melting, floating off the fat, and vacuum-drying it. Removal of the water itself tends to prevent adverse bacterial and chemical activity which brings on rancidity. But the gas must also be removed from the fat to prevent oxidation. Vacuum-drying in pans or with agitation accomplishes this. Packing either dehydrated whole milk or butter oil in inert atmospheres may be rendered unnecessary if the products are made properly.

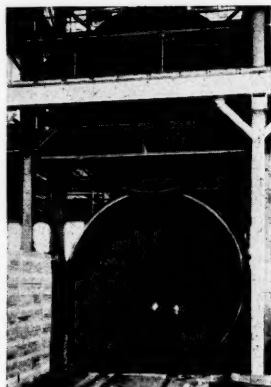
Butter oil keeps well when properly made, even at room temperature. It can be used directly for cooking, or reconstituted into butter by the addition of water and salt. The fact that it can be shipped without refrigeration is important in wartime.

Meat

The process for the successful dehydration of meat has not yet been fully perfected, but an excellent product has already been turned out. The meat is cut in fairly small pieces before dehy-

(Continued on page 52)

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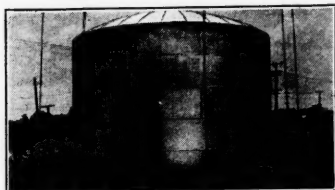
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BALTIMORE, MD.

Commercial Dehydration of Food

(Continued from page 50)

dration or sometimes ground to hamburger consistency.

For dehydrating, fresh beef (or pork) is cut from the bone. Masses of fat are also dissected away, though from 20 to 30 per cent of fat has been found permissible in experimental batches. The meat is next sliced into chunks and is then put through a sausage mill equipped to grind it into pieces about 1½ inches in diameter. The material is now ready for dehydration.

According to current procedure the ground meat is thrown between two heated drums which slowly revolve towards one another but do not quite meet. They are set one-eighth inch apart. The drums are hollow and there is 100 pounds of steam pressure with a temperature of 337° F. inside. They usually make a complete revolution in less than a minute. The meat is in actual contact with the heated drums for from 40 to 60 seconds in different experimental batches.

This treatment not only cooks, coagulates, and shreds the meat, but also acts as a blanching process and partially dehydrates it as well. Within three-quarters of a minute the meat loses from 45 to 50 per cent of its water content. Scrapers automatically remove the cooked meat from the revolving drums and it falls into trays beneath. From these it is transferred to other mesh-bottomed trays which are slipped into a cabinet drier for two or three hours at 160° F. The water of the meat is now reduced to 5 per cent and it is ready to be packed.

The final product occupies about half the volume of the original raw meat and weighs about one-fourth as much. It can be still further compressed in packing if desired. The exposure to heat has inactivated all enzymes present and killed the bacteria. From 20 pounds of fresh meat, 5.3 pounds of dehydrated were produced in one run.

Further experiments are being made on the cooking and drying temperatures and equipment, on the permissible fat and moisture content of the raw material, and on the keeping quality of the product when stored under variable conditions—at 0°, 35°, and 110° F., and at room temperature. Fat is the constituent that may become rancid unless carefully handled. Many problems remain to be solved, but it has been proved that a satisfactory product can be turned out.

Location of Dehydrating Plants

To date the greatest concentration of vegetable dehydration plants has been in California, but the plants now begin to extend into Idaho, Colorado, Washington, and Oregon, and into some Eastern States, particularly New York and Maine. It is time that the South recognizes the early manhood of a rapidly growing industry.

Priorities Put in Effect During August

(Continued from page 42)

orders that they do not have any obsolete plates in their possession.

Printing Ink—M-53 (as amended 6-29-42) Amend. #1 permits lead oxide to be used without restriction. Also permits unrestricted use of varnishes containing glycerol phthalate resins and phenolic resins.

Railroad Equipment—L-97-b places under strict control the production and delivery of railroad-type industrial cars which are required for intra-plant transportation in war industries. L-97-a-1 Int. #1 makes it clear that car builders and suppliers can transfer surplus freight car material to railroads.

Railroad Standard Watches—L-175 establishes allocation control and restricts sales by manufacturers to fill only orders for Army or for time service employees of railroads.

Razors and Razor Blades—L-72 Amend. #2 extends existing limitations of order in effect until Sept. 30.

Repairs, Maintenance and Operating Supplies—P-100 (as amended) Amend. #3 states that no material to be used for packaging or shipping may be ordered with preference rating under this order.

Rubber—M-15-b-1 Amend. #11 prohibits use of tire friction scrap in all heels and soles whether for Army, Navy or civilian use; limited amount permitted for Marine Corps until Oct. 1. M-15-b-1 Amend. #12 changes wording of specifications governing manufacture of feeding nipples to permit production of types necessary for feeding lambs. M-15-b-1 Amend. #13 curtails use of various types of rubber in making products for delivery on war orders. M-15-b-1 Amend. #14 sets specifications governing manufacture of camelback and capping stock also revises specifications on tire compounds, tire and casings and tubes for passenger cars, trucks and

agricultural implements. M-15-b Amend. #12 prohibits regrooving of tires without written approval from WPB. M-15-b (as amended 8-25-42) consolidates original order and all amendments and permits use of crude rubber, latex, reclaimed rubber and scrap rubber in all civilian products only by specific authorization: use forms PD-330, 407 and 500-b. M-119 Amend. #1 permits manufacturers whose business is packing those products for which rubber sealed closures were barred by M-119 to use inventories of such closures which were made by April 19. M-119 Amend. #2 adds dried beans to list of food products for which use of rubber sealed closure is prohibited. M-46 Amend. #2 prohibits use of chlorinated rubber in making electrical insulation but permits use in making core binder cement and extends order indefinitely.

Soluble Dried Blood and Blood Adhesives—M-192 establishes complete allocation control. Use forms PD-600 and 601.

Space Heaters—L-173 cuts off further production calling for use of fuel oil or gas except for government agencies.

Springs and Mattresses—L-49 (as amended 8-4-42) stops production of mattresses on Sept. 1; and stops production of studio couches, sofa beds and lounges on Nov. 1 if containing any iron or steel. Use form PD-500.

Steel and Iron—M-126 (as amended 7-13-42) Amend. #4 adds War Shipping Administration to list of government agencies exempt from M-126. P-68 Amend. #4 sets AA-3 ratings for maintenance, operation and repair supplies of iron and steel mills. M-21 (as amended) Int. #1 states that "Steel" and "Iron Products" as used in original order do not include used or salvaged materials.

Suppliers' Inventory Order—L-63 (as amended 8-13-42) is a reissuance of original order and all amendments.

Tannic Acid—M-204 places nutgalls and tannic acid U. S. P. under complete control. Use form PD-623.

Tea—M-111 Amend. #2 removes special restrictions from sale or delivery by wholesalers and jobbers who, on March 27, had large inventories.

Tin—M-43-a (as amended 6-5-42) Amend. #1 permits production and use of wiping solder with tin content up to 38% for all purposes until Sept. 1.

(Continued on page 54)

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Structural Steel for all Industrial Structures,
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LARGE STOCK FOR IMMEDIATE SHIPMENT

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M & H GATE VALVES are cast iron body, bronze mounted, with double-disc parallel seat or solid wedge top, non-rising stem or outside screw yoke. They come either with flanged or screwed connections. Valves for fire protection lines are approved by both the Underwriters and the Factory Mutuals.

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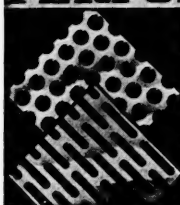
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CHARLES MUNDT & SONS
490 Johnston Ave., JERSEY CITY, N. J.

Priorities Put in Effect During August

(Continued from page 52)

Toiletries and Cosmetics—L-171 Int. #1 clarifies the meaning of certain provisions of the order.

Tools—E-7 limits sale and distribution of metal band cutting saw blades and hack saw blades to preference rating of A-9 or higher. E-2-b provides for changes in production and scheduling of all types of cutting tools and supersedes order E-2-a which is revoked. Use form LD-IX.

Toys and Games—L-81 Amend. #2 eliminates previous restrictions on use of a large number of pigments, oils and other materials used in paints and varnishes.

Tungsten—M-29 (as amended 6-29-42) Amend. #1 permits delivery of ores or concentrates by any producer, dealer or processor to dealers or processors for purpose of being concentrated or benefited without WPB authorization.

Turbo-Flowers—L-163 establishes strict control over distribution. Use forms PD-616, 616A and 616B.

Used Construction Equipment—L-196 requires all owners to register their equipment with WPB within 30 days. Order effective 8-31-42. Use form WPB-1159 and 1333.

Utilities—P-46 Amend. #3 removes from P-46 authority to all utilities to complete construction projects 40% complete on Dec. 5, and provides no additions or expansions to electric systems except as authorized.

Vehicles—L-158 Amend. #1 authorizes producers to schedule production of essential replacement parts ahead of all other orders rated lower than A-1-a. L-180 places limitations on production, use and sale of storage batteries. L-4-b revoked effective 8-29-42. M-216 establishes program set up by WPB, OPA, RFC, and ODT for conservation of new automotive vehicles to be followed in

caring properly for stored vehicles: use form PD-641. M-216 Sch. #1 sets standards for maintenance of new automotive vehicles.

Vitamin "A"—L-40 (as amended 8-26-42) permits additional 1,000 units per pound of vitamin "A" units which can be incorporated per pound of feed.

White Oak—M-209 prohibits use of white oak logs in manufacturing veneer. Manufacturers must report to WPB all such logs in excess of 50,000 board feet. Use form PD-631.

Wood Pulp—M-93 Amend. #2 removes shipments of less than five tons in any calendar month from restrictions on delivery imposed by original order. M-93 Amend. #2 Corr. #1 eliminates duplication of phrase in original order.

Wool—M-73 (as amended for period 8-3-42 to 1-31-43) Amend. #1 completely releases mohair from restrictions of original order and permits its unrestricted civilian use.

New Industrial Plants and Expansions in the South

(Continued from page 37)

foundation; concrete and tile work; plumbing; millwork; mechanical work; sheet metal work; steam heating; electrical work, etc.

MARYLAND

BALTIMORE—laboratory—U. S. Industrial Chemical Co., Fairfield, opened bids Aug. 23 for addition to laboratory building; brick and frame, 1 story; prospective bidder, W. E. Bickerton Construction Co., 101 W. 22nd St., Baltimore.

BALTIMORE—oil storage building—Crown Cork & Seal Co., received bids Aug. 11, at office of Lucius R. White, Jr., Archt., 10 W. Chase St., for oil storage building, Eastern Avenue; following were estimators: William J. Wiesand, Inc., 216 E. Lexington St.; Consolidated Engineering Co., 20 E. Franklin St.; Frantz Construction Co., 10 W. Chase St.

BALTIMORE—sub-station—Baltimore Transit Co., has plans in progress by Addison F. Worthington, 14 E. Hamilton St. for sub-station Falls Rd.; 1-story; masonry.

CHILUM—plant addition—Washington Gas Light Co., 411 10th St., N. W., Wash-

ington, D. C., is having plans prepared by G. D. Mock, same address, for a brick and concrete addition to plant.

FAIRFIELD—electrical and maintenance building—Bethlehem-Fairfield Shipyard, Inc., received bids Aug. 19 for electrical and maintenance building; following were estimators: Consolidated Engineering Co., 20 E. Franklin St.; Cummins Construction Corp., 803 Cathedral St.; Whiting-Turner Contracting Co., Stewart Bldg.; all Baltimore; Irwin & Leighton, Inc., Philadelphia, Pa.; Booth & Flinn Co., 1942 Forbes St., Pittsburgh, Pa.

MISSOURI

INDEPENDENCE—expansion—War Department may expand ordnance plant 5 miles east of here at cost of \$2,064,000; operated by Remington Arms Co.

ST. LOUIS—paper box factory—Stumpfen-hagen Corrugated Paper Box Co., Arthur Stumpfenhagen, Pres., acquired factory building at Seventeenth and Clinton Sts., from Omar Tool & Machine Co., W. E. Ellinwood, Pres., and will occupy the property soon; factory consists of 2-story building with new 1-story addition, approx. 115 by 35 ft.

NORTH CAROLINA

CHARLOTTE—administration building—R. C. Hicks, Piedmont Bldg., low bidder for administration building for U. S. Rubber Co.; cost \$130,915; Sanderson & Porter, Engrs., 1903 Liberty Life Bldg., Charlotte.

MOUNT AIRY—dehydrating plant—United States Agricultural Marketing Administration authorized conversion of Mount Airy Canning Co. plant into vegetable dehydrating plant; announcement made by W. Kerr Scott, State Agriculture Commr., Raleigh.

OKLAHOMA

TULSA—plant—Aluminum Company of America, Pittsburgh, Pa., reported, considering establishment of aluminum drop forging plant in Tulsa; Thomas D. Jolly, chief engineer of company.

SOUTH CAROLINA

WOODRUFF—dehydration plant—S. J. Workman erect dehydration plant.

TENNESSEE

Plastic Plant—V. C. Henrich, Bristol, Pa., representative of Rohm & Haas Co., Inc., 222 W. Washington Square, Philadelphia, Pa., has made preliminary survey for the equipment of a plant in Tennessee for war
(Continued on page 63)



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Spur Gears— $\frac{1}{8}$ in. to 30 ft. in diameter

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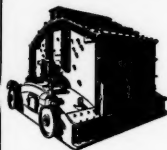
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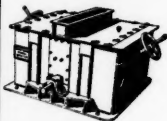
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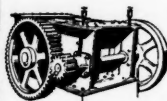
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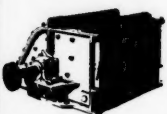
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Granulate materials of medium hardness . . . Bituminous coal, . . . Gypsum Rock, etc., to produce sizes 1/2" to 2", with minimum fines and oversize. Operation practically dustless. Steelbuilt. Patented.



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SIXTH
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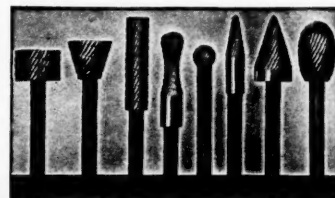
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and FASTENERS**
for transmission
and
conveyor belts



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STEEL BELT LACING

World famed in general service for strength and long life. A flexible steel-hinged joint, smooth on both sides. 12 sizes. Made in

steel, "Monel Metal" and non-magnetic alloys. Long lengths supplied if needed. Bulletin A-60 gives complete details.

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BELT FASTENERS AND RIP PLATES

For conveyor and elevator belts of all thicknesses, makes a tight butt joint of great strength and durability. Compresses belt ends between toothed cupped plates. Templates and FLEXCO Clips speed application. 6 sizes. Made in steel, "Monel Metal", non-

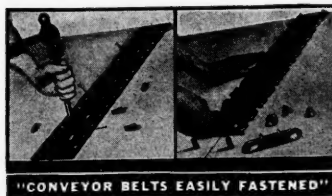
magnetic and abrasion resisting alloys.

By using Flexco HD Rip Plates, damaged conveyor belting can be returned to satisfactory service. The extra length gives a long grip on edges of rip or patch. Flexco Tools and Rip Plate Tool are used. For complete information ask for Bulletin F-100.

Sold by supply houses everywhere

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LACING CO.**

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"CONVEYOR BELTS EASILY FASTENED"

Mr. Check says:

**J&L
WIRE
ROPE**

**"J&L PERMASET
Pre-formed Wire Rope
gives extra service."**

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

GILMORE WIRE ROPE DIVISION • PITTSBURGH & MUNCY, PA.

Metals, Chemicals and Other Materials Getting Scarcer Group III Chemicals

(Continued from page 33)

Sodium Sulphide

MISCELLANEOUS PRODUCTS

Asbestos (Short Fiber)
Asphalt
Bauxite, low grade
Bentonite
Brick
Carbon Black, exc. I
Casein
Cement (Portland)
Ceramics
Charcoal
Clay (Common)
Coal and Coke
Coal Tar Pitch
Concrete, Plain
Corn Stalks
Cotton, Raw, to 1 1/2"
Diatomite
Emery
Feldspar
Felt, Hair
Fiberboard
Flint
Gilsonite
Glass
Gypsum and Products
Hair: Cattle, Calf and Goat
Ilmenite
Lead Pigments
Lignin
Extender for Plastics

Linoleum Paste
Lime
Lithopone
Lumber and Millwork:
Low Common Grades
Soft and Hard Woods
All Grades Gums
Mica, exc. Block
Mineral Wool
Oils: Cottonseed
Peanut
Soybean
Sunflower Seed

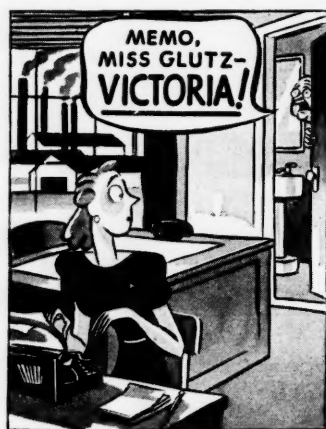
Paper
Paperboard
Petroleum Products
Crude Oil
Gasoline, exc. Aviation
Lubrication Oil
Plywood (unrestricted binder)
Pottery
Rosin and Derivatives exc. Ester Gum
Salt
Silica Sand
Soybeans, Protein
Starch, Domestic
Stone, Granite
Limestone
Marble
Slate
Soapstone
Straw
Sulphur
Tile
Titanium Pigments
Tripoli
Turpentine
Vermiculite
Wallboard

Wood Products
Sawdust
Wood Fiber
Wood Flour
Wood Pulp, exc. II
Zinc Oxide (Am. Process)

SUPPLEMENTARY LIST

Materials (not all in Group III) on which the Inventory Restrictions of Priorities Regulation No. 1 have been released

Andalusite, domestic
Ball Clay
Bentonite
Borax
Boric Acid
Caustic Soda
Coal and Coke
Diatomaceous Earth
Dumortierite, domestic
Feldspar
Ilmenite
Kaolin
Kyanite, domestic
Phosphate Rock
Pinite
Potter's Flint
Pyrophyllite
Salt
Sillimanite, domestic
Soapstone
Soda Ash
Spodumene
Stoneware Clay
Sulphur
Talc
Waste Paper



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Single Fold, Double Fold, or Black Core—for high quality at low cost. The Victoria Paper Mills Company, Fulton, New York.

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many businesses that have brought us their financial problems.

Correspondence invited.

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GWYNN CROWTHER, President
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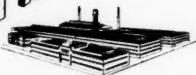
While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

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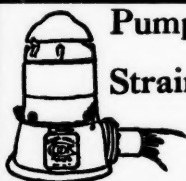
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Power Brakes • Spot,
Arc and Gas Welders
Drill Presses • Bull
Dozer Forming Equip-
ment • Automatic
Saws • Heat Treating
Furnaces • Finishing
Equipment • Tool
Room Equipment.

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FABRICATORS OF
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ANGLES • FLATS • ROUNDS • SQUARES • TEES • STRIPS • SHEETS • PLATES

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IRON WORKS CO. Inc.**
1963 Stewart Block
Cincinnati, Ohio



Pumps— Deep-Well Plunger and
Turbine

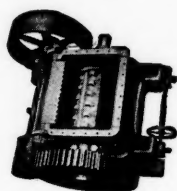
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A. D. COOK, Inc.**
Lawrenceburg, Indiana

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Contractors

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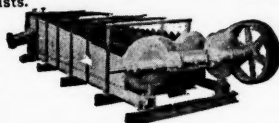
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Single and double roll and jaw crushers, hammer mills, super dry pans—steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists.

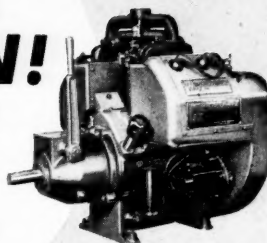
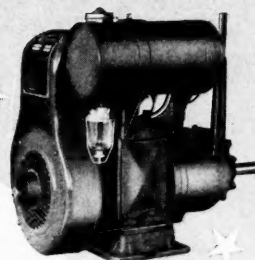
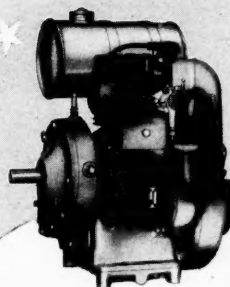
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Complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials.



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MILWAUKEE, WISCONSIN, U. S. A.

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GARY GRATING & TREADS

GARY - WELDED

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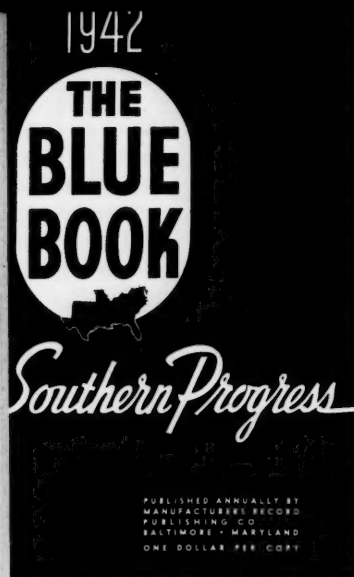
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6—Bigelow-Hornsby 633 HP water-tube boilers 167# pressure, 100% superheat, with Taylor stokers. Automatic skip hoist, 400 ton overhead storage bunker, weighing Larry, ash carts, hoist, bins, etc. Hogan automatic combustion control, Bailey meters, Stets regulator, Diamond Soot blowers, Sturtevant forced draft, feed pumps, etc. Also coal hopper, conveyor crusher, automatic hoist, etc. Modern steel boiler house, piping, etc.

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- 1—1500 KW Westinghouse Turbo Generator, 3 ph. 60 cy. 600 volt—3600 RPM, with condenser. 150# pressure—28" vac.
- 1—Allis-Chalmers Turbo Gen. 375 KW 3 ph. 60 cy. 600 volt—3600 RPM, low pressure 2—18#—28" vac.
- 1—Allis-Chalmers 375 KW Turbo Gen. 3 ph. 60 cy. 600 volt—3600 RPM, high pressure 150#—28" vac.
- 1—1000 KVA Synchronous condenser. Westinghouse 600 volt—3 ph. 60 cy. 900 RPM.
- 2—Westinghouse 50 KW exciter generator sets. 125 volt, 350 RPM—direct connected to Sturtevant vertical engines.

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BORING MILL—48" Bickford, 2 heads, belt.
GRINDER—20" x 144" Landis Cylindrical, will motorize.
GRINDER—16" Diamond face, 30" wheel m.d.
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LATHE—21"x8" LeBlond, quick change, motorized.
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1050' Chicago OCB.
563' Ingersoll-Rand, 14x10, ER.
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Pulverizer, Crushers, Steel & Cast
Iron Agitated Tanks, Sirocco Blower,
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One chipper or hog for
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SADDLE TANK TYPE
One 4-Wheel Steam Saddle Tank...30 ton
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One 4-Wheel Std. with Tender...40 ton
One 6-Wheel Std. with Tender...52 ton
One 6-Wheel Std. with Tender...68 ton
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Two 6-Wheel MOGUL 2-6-0.52 & 56 tons
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Also: Hopper, Gondola, Flat and
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- 1—1000 HP Edgemoor, 200 lbs. ASME with Super-heater & Stoker.
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- 2—40 HP Farquhar Loco Type ASME 125 lbs.

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LOCOMOTIVE CRANES:
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2 yd. Ind. Brownhoist, Type "BC"
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6 cyl. 14 x 17 F.M. 257 RPM. V.A. Solid injection d/c to 300 KVA. 3/60/2300 gen. with d/c exciter complete with auxiliaries — excellent condition — can be seen in operation—Price \$12,000.
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GREENPOINT IRON & PIPE CO., INC.
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1	220	2300	115/230	All. Ch.	3 ph.
3	150	22000	6000	Pgh.	
1	150	2200	230/460	G.E.	3 ph.
1	100	2200	110/220	G.E.	3 ph.
1	100	2200	110/220	West.	
3	100	6500	550/410/220	Pgh.	
1	100	2200	220/110	West.	
2	75	2200	220	Burke	3 ph.
2	50	2300	220/440	G.E.	1 ph.
2	50	11320/6600	550	All. Ch.	
3	50	6500	575	G.E.	
1	50	2200	220	Burke	
3	50	2200	110/220	West.	
5	50	2200	110/220	G.E.	
1	37 1/2	2500	220/440	Wagner	
3	37 1/2	22000	2200	West.	
3	37	4400	185	West. (Rotary)	
1	20	2200	110/220	G.E.	
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1—150 HP. Allis Chas. 2200/3/60 1200 rpm. 70% P.F. 125 v. exciter dlr. conn. thru coupling to 1-Falk Reduction Gears, ratio 1200—164 rpm. complete with control.

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150 kw. West. 250 v. rpm., 2200 3 ph. 60 cy.
1—200 kw. G.E. 275 v. 900 rpm., 3 ph. 60 cy. complete with overspeed device and transformers.
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150 K.W. General Electric, type AQB, form E, class 32-150-225, 2 phase, 60 cycle, 220 volts, 341 amps direct connected to 17" x 16" Ames Horizontal Automatic Engine, 125# pressure. Complete with Panel Board, etc.
150 K.W. Burke, three-wire direct current, type W.B. 35, volts; 2x120 and 2x125, 300 amps, 275 RPM., direct connected to 13" x 16" Harrisburg Inflow Engine, Rated 120 H.P. at 125# pressure at 275 RPM., 5# back pressure.

MOTOR
206 H.P. General Electric slip ring, type MT-12-206M, three phase, 60 cycle, 2300 volts form M, 58 amps, 580 RPM.

M. J. HUNT'S SONS
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New Industrial Plants and Expansions in the South

(Continued from page 54)

production; plans call for remodeling a wood products plant and installing more than \$1,000,000 worth of equipment to manufacture plastics; Mr. Henrich will be manager of the new plant.

CHATTANOOGA—plant—Westbrook Sons N. W. Westbrook, 2108 Ringold Rd., plans de-tinning plant; brick; concrete; composition roof; cost \$80,000.

TEXAS

GALVESTON—miscellaneous equipment—Todd Dry Dock, Pelican Spit, Frederick R. Harris, Engr., soon call for bids on miscellaneous equipment, including, drinking fountains, compressors; towers; pumps; castings; lockers, etc.

HOUSTON—remodel refinery—American Republics Petroleum Co., Petroleum Bldg., plans to convert idle plant into butadiene production plant to aid in manufacture of rubber.

JACKSONVILLE—canning plant—Jacksonville Canneries, Inc., Fred W. Graves, Mgr. purchased property of Jacksonville Cate & Basket Factory; erect double line canning plant and warehouse.

VIRGINIA

NORFOLK—equipment trust certificates—Receivers of Seaboard Air Line Railway have been authorized by Interstate Commerce Commission to sell at par and accrued dividends to Reconstruction Finance Corporation \$2,280,000 of equipment trust certificates which have been issued by the Girard Trust Co.; Seaboard Air Line plans to buy six 5400-horsepower Diesel freight locomotives and two 1000-horsepower Diesel switching locomotives at cost of \$3,069,760.

RICHMOND—pipe line—Plantation Pipe Line Co., Healey Bldg., Atlanta, Ga., is extending pipe line from Greensboro, N. C., to a new terminal point in Virginia; new line will be constructed at estimated cost of \$3,000,000, will be about 165 mi. long and move about 30,000 bbls. of petroleum products daily; construction will be of 8-in. second hand pipe, reconditioned; pipe line's capacity of company will be increased from 60,000 to 90,000 bbls. daily through construction of feeder line from Beaumont, Tex., to Baton Rouge, La.; line has pumping stations at Belton and Spartanburg and additional intermediate pumping stations will be installed.

WAYNESBORO—plant—E. F. Conger

Creosoting Co., purchased site on South River for plant; dredging and flood control work underway.

SOUTH

Bureau of Mines, Washington, D. C., will establish a \$350,000 pilot plant and laboratory as part of war program of Department of the Interior to conduct commercial scale tests of a gas reduction process developed by the Bureau for production of metal zinc; plant will probably be built in South-Central section; will have output of 500 lbs. metallic zinc daily; funds already provided.

Plantation Pipe Line Co., Healey Bldg., Atlanta, Ga., received bids, Aug. 19 from following for 15 pumping stations and offices, erect 1 building at each of following places: Austell, Hartwell, Winder, LaGrange, all Georgia; Fluker, La.; Hawthorne and Paulding, Miss.; Boyd, Coaling, Vincent and Heflin, Ala.; Simpsonville and Blacksburg, S. C.; Huntersville and Thomasville, N. C.; Jiroud Jones Construction Co., Walton Bldg., Atlanta, Ga.; Ralph A. Smallman Construction Co., 1109 Fifth Ave., S., Birmingham, Ala.; Foundation Company of Mississippi, Jackson, Miss.; Gravier Tank & Manufacturing Co., E. Chicago, Ind.; White Electrical Construction Co., Columbus, Ga.; H. C. Price Co., Bartlettville, Okla.; Williams Bros. Corp., National Bank of Tulsa Bldg., Tulsa, Okla.

President Roosevelt signed bill authorizing construction of 600 mile section of pipe line extending from Charleston, S. C. and/or Savannah, Ga. to Tinsley Oil Field in Mississippi; bill authorized the appropriation of \$13,000,000 to cover cost of construction; authorization is subject to terms and conditions of Cole Pipe Line No. 4816, which leaves the directives up to the President; Trans-American Pipeline Corp., Lincoln National Bank Bldg., Washington, D. C. plans constructing the line; Vincent G. Shinkle, Consit. Petroleum Engr.

Greensboro to Richmond Pipeline Plan Approved

Approval of plans for extension of the Plantation Pipe Line from Greensboro, North Carolina, to near Richmond, Virginia, in a move designed to make 30,000 barrels of oil products available daily at that point for movement to important eastern consuming centers was announced recently by the Office of Petroleum Coordinator.

It has been agreed that the extension should be undertaken as a Government project. Accordingly, as soon as the industry group completes its work, negotiations will be initiated with the appropriate Federal agency looking to an agreement whereby the Government will finance the estimated \$3,000,000 cost of the undertaking.

The extension from Greensboro will require about 165 miles of secondhand, 8-inch pipe, which it is believed can be obtained by digging up and reconditioning existing lines now either idle or only in partial use. Pipeline engineers estimate that the actual laying of the line could be completed in less than 100 days after all necessary materials are obtained.

Most of the refined products moved to Richmond via the extension would be trans-shipped by barge.

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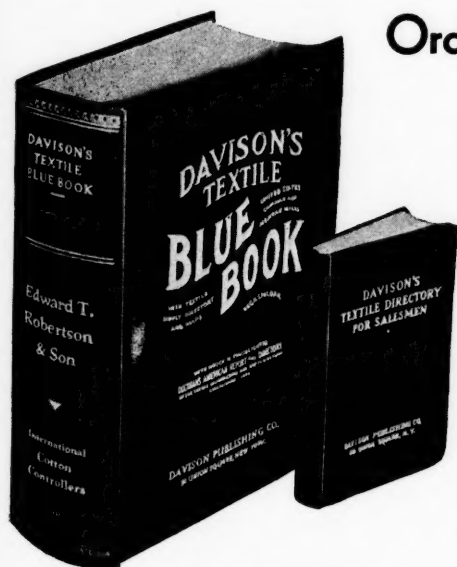
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